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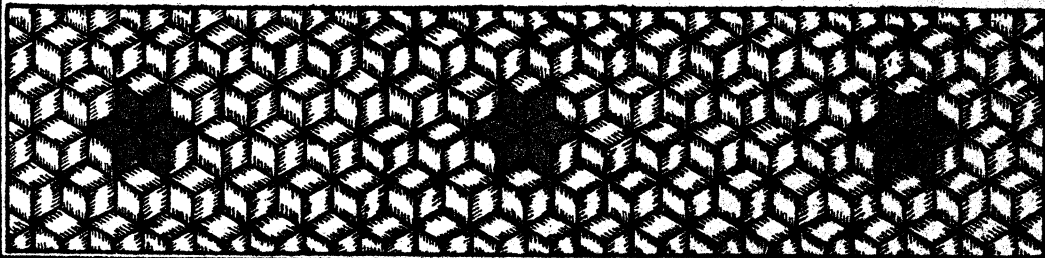
# THE PHILIPPINE CRAFTSMAN

AUGUST, 1912

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INSTRUCTION IN THE PUBLIC  
SCHOOLS OF THE PHILIPPINES

VOL. I

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# The Philippine Craftsman

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MANILA, AUGUST, 1912

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*WE ARE IN THE MIDST OF  
A GREAT TASK; WE ARE  
WORKING OUT THE BASIS  
AND THE DETAILS OF THE  
GREATEST INDUSTRIAL  
DEMOCRACY IN HUMAN  
HISTORY*

*ARTHUR D. DEAN*

# The Philippine Craftsman

VOL. 1

AUGUST, 1912.

No. 2

## THE WORK OF THE SCHOOL SHOPS AND TRADE SCHOOLS.

W. W. MARQUARDT, Superintendent, Philippine School of Arts and Trades; BRUCE INGERSOLL, Inspector of Trade Schools; LUTHER PARKER, Industrial Inspector.

**I**NDUSTRIAL training along the lines indicated by local conditions has been an essential feature of public education in the Philippine Islands. During the past few years, every school child has been given practical training in one or more branches of industrial work such as lace making, embroidery, sewing, cooking, housekeeping, making of hats, mats, and baskets, gardening, farming, ironwork, woodwork, pottery. Woodworking, however, was one of the first industrial subjects to

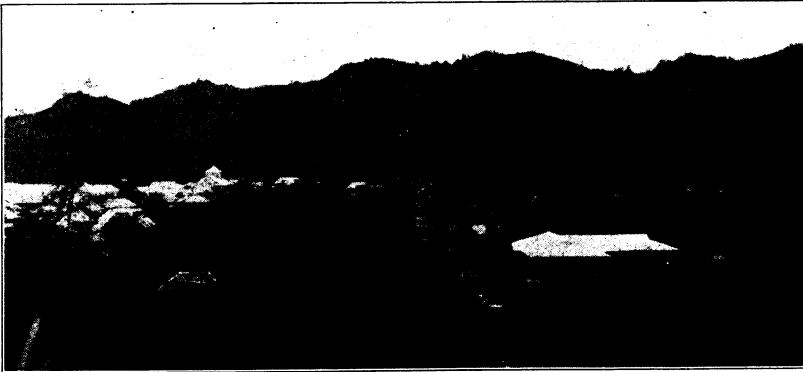


Plate I. A trade school with plenty of room for expansion and a good campus (being cleared), Catbalogan, Samar.

be introduced and developed. Beginning with the Philippine School of Arts and Trades in 1901, it spread gradually through all of the provincial schools, fourteen of which are now regular trade schools of intermediate grade. It also reached downward in the course until it embraced 236 primary or fourth-grade shops.

The keynote of the work in all schools is continued insistence upon utility, and "instruction for construction." Theoretical

exercises of no use as completed articles are not wholly discarded, but emphasis is always placed upon objects of commercial value. Not only is the commercial side of the work stressed in respect to the kind and quality of articles manufactured, but the value of the materials and labor required in the making of all articles is continually kept in the foreground. The annual exposition at Manila enables each school to learn definitely what is being done in other schools and diffuses a higher standard of workmanship throughout the Islands.

In respect to organization, output of commercial products, and the industrial efficiency of their graduates, the trade schools represent the highest point attained in the development of the vocational work of the Islands. The primary woodworking shops are a later development, and have rapidly increased in number.

In a general way the shops may be divided into three classes, municipal, provincial, and Insular, depending upon the branch of the Government which finances them. The accompanying outline will serve to show this general classification.

#### SHOP AND TRADE COURSES.

##### *Municipal.*

In any municipality or barrio.

##### Primary.

Elementary shop work.

##### Intermediate.

Shop work in the general course.

Frequently conducted in connection with primary shops.

The trade course.

This course may be given in municipal intermediate shops when students are far enough advanced to undertake regular trade course work. Very few have yet been established.

The regular trade school.

No municipal trade schools have yet been established.

##### *Provincial.*

Generally located in provincial capitals; may be established by provincial boards in any other centers.

##### Primary.

None yet established.

##### Intermediate.

Shop work in the general course.

Generally located in provincial capitals and operating as a department of the provincial high school. At the discretion of the provincial board they may be established in other municipal centers.

Trade course.

Generally conducted in the shop department of the provincial high school.

*Provincial—Continued.**Intermediate—Continued.*

The regular trade school.

Organized from the trade classes of provincial high schools in provincial capitals.

*Insular.*

May be established by the Bureau of Education at Insular expense anywhere in the Islands.

*Primary.*

Nothing has yet been done except to establish certain primary shop courses as special projects in non-Christian provinces.

*Intermediate and secondary.*

As special Insular projects, the work of these grades is operated on a regular trade basis. Only one institution, the Philippine School of Arts and Trades, has yet been established, though other special projects may be undertaken by the Bureau, as, for example, in taking over the management of existing provincial institutions.

The exact status of any one of the school courses referred to in this classification can be determined by its position as provincial, municipal, or Insular, its grade as primary, intermediate, or secondary, and the class of work given, whether it is the primary course of shop work, the work provided with the general course, or the regular trade work as it may be given in a special intermediate trade course or in a regularly organized trade school. The terms, shop course, school shop, shop work, trade course, and trade work, are applied to them.

In deciding upon the names by which these various courses shall be known, no special rule has heretofore been adhered to; the terms have grown up with the work. This has not been entirely satisfactory and more than one misnomer has existed in the terms used in connection with shop work. For instance, the term "manual training," meaning generally woodwork, and the term "manual training department of the provincial high school," meaning the shop of a school which has not yet been recognized on the regular trade basis, have come into use. These terms are misleading; it is now the intention to apply the term "manual training" in the sense in which it is used in the United States and other countries, meaning the general training of the hand in any line of handwork, principally for cultural purposes. In discarding this term, which has had a distinct meaning in the schools, it becomes necessary to supply another. For present purposes the term "shop course" will be substituted for the "manual training" of the past, and the trade course will of course include the trade work given in the ordinary school shops as well as the trade work given in regular trade schools. In its

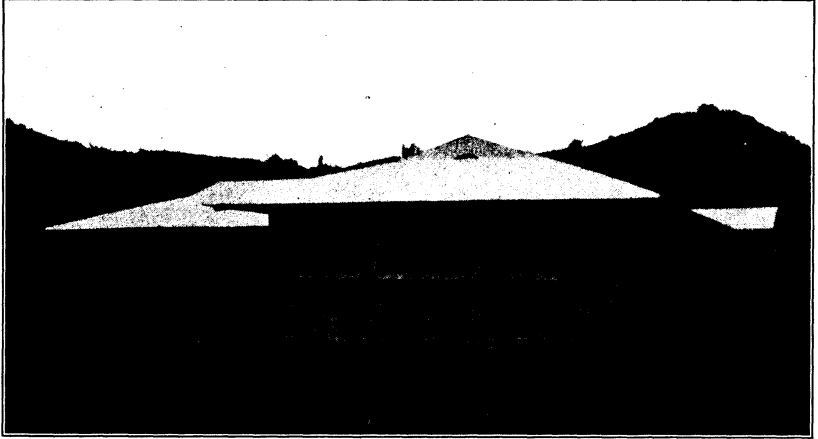


Plate II. The main building of the Trade School at Catbalogan, Samar.

general sense, the term "shop work" will be understood to include all work except that of the trade course; a school shop, however, will include all institutions of this sort except the regular trade schools.

#### THE PRIMARY SHOPS.

The first primary shop was probably started at Pagsanjan, Laguna, in 1904, with a native carpenter as teacher. The real extension of the work began in Pangasinan in 1906, when a selected class of twenty boys was given a year's normal course in woodworking as a preparation for teaching in the primary shops planned for the municipalities of the province. In 1907 twelve shops were started and another teachers' class was or-

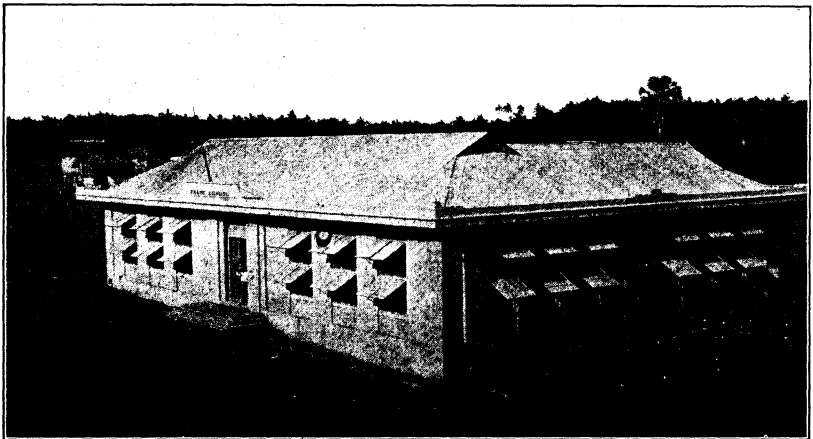


Plate III. The shop building at Lucena, Tayabas.



ganized. The process has been continued until in this province forty municipalities out of a total of forty-six now have primary shops. Since 1907 the number of new shops in the Islands has more than doubled each year; but from now on the rate of extension will necessarily be slower because the municipalities have about reached their limits financially with respect to expenditures for the installation of shops. Out of a total of 779 municipalities in the Islands, 236 are provided with primary shops, having a total equipment valued at ₱33,015, and producing last year a commercial output amounting to ₱20,530.62. Out of a total of 17,343 boys enrolled in the fourth grade 10,356 took primary shop work during the school year 1911-12.

#### AIMS OF PRIMARY SHOP WORK.

The average entrance age of fourth grade boys is 14 years. At least 50 per cent of these will not continue their schooling beyond this grade. In addition to the imparting of the usual primary education in academic subjects, the primary woodworking course prepares the older and larger fourth grade boys for later work. The aims in teaching shop work in the primary grades are threefold:

(a) To give a general training in the handling of ordinary carpentry tools to those boys whose education will end with



Plate IV. The Albay provincial school shop building.

the fourth grade and who should receive therein enough instruction to enable them to keep up the necessary repairs around

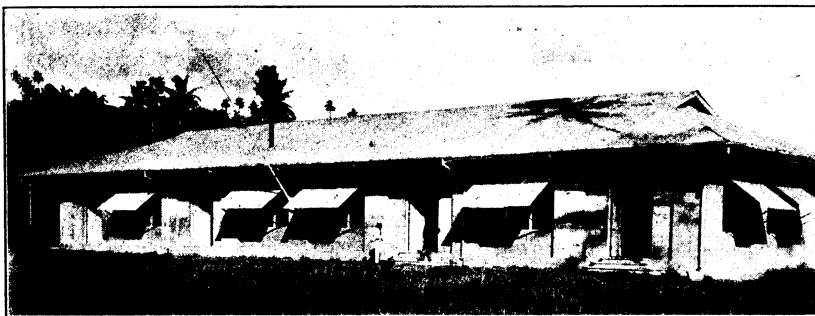


Plate V. Shop building, Leyte Trade School.

the home and to make very simple furniture of bamboo or wood.

(b) To give training in making a set of tools to those larger and older boys of the fourth grade whose schooling will cease with the completion of this grade and who will do more or less work with tools after leaving school in order to make a living.

(c) To ascertain which pupils possess mechanical ability or natural inclination for woodworking, and to prepare them for entrance to a provincial trade school or a shop class in an intermediate school.

#### PRIMARY WOODWORKING COURSE.

It is easier to arouse and maintain a pupil's interest on a real piece of furniture than on an exercise of no value as a finished product. However, there are certain fundamental steps



Plate VI. A good arrangement for machinery, with space for piling lumber while sawing and planing.

in tool work such as marking, sawing, planing, and gauging, that should be done only on waste material until the operations can be performed with accuracy and speed in the construction of valuable articles. A regular course has been outlined covering the fundamental steps necessary for a proper comprehension of tool work. The articles prescribed in the regular course are mostly of utility in the homes of the pupils. Careful attention has been given to the character of each article so that a large number of useless pieces may not accumulate in the workshops.

The preliminary steps are provided for under the heading "practice work," but the necessity of frequent variations is fully



Plate VII. Department of bench wood work.

Ample space between benches for assembling furniture. School shops are cleaned daily.

recognized, and three subsidiary courses have been designed to meet the varying conditions of different localities.

The regular course contains the following outline of work:

- |  |                                    |
|--|------------------------------------|
| 1. Rectangular block.                            | 9. Bracket.                        |
| 1. (a) Planed strips (optional).                 | 9. (a) Book shelf (optional).      |
| 2. Gauging lines.                                | 10. Picture frame.                 |
| 3. Squaring and sawing.                          | 10. (a) Windmill (optional).       |
| 4. Sawing and chiseling.                         | (b) Water wheel (optional).        |
| 5. Bench hook.                                   | 11. Hatrack.                       |
| 6. Mallet.                                       | 11. (a) Rake (optional).           |
| 6. (a) Clothes paddle (optional).                | 12. Stool.                         |
| 7. Liter measure.                                | 12. (a) Stool, folding (optional). |
| 7. (a) Small chest (optional).                   | 12. (b) Washstand (optional).      |
| 8. Embroidery frame.                             | 12. (c) Table (optional).          |
| 8. (a) Drawing board or mixing board (optional). |                                    |

The subsidiary primary courses provide for:

- (a) Making a set of woodworking tools for home use.
- (b) Making school furniture.
- (c) Erection of a school building and the fabrication of school equipment.

It is often the case that a set of woodworking tools must be made for home use when the parents are not able to buy a set of tools for the boy. For such boys, the following outline may be followed:

- |                          |                          |
|--------------------------|--------------------------|
| 1. Rectangular block.    | 9. Try square.           |
| 2. Gauging lines.        | 10. Mallet, rectangular. |
| 3. Squaring and sawing.  | 11. Line marker.         |
| 4. Sawing and chiseling. | 12. Saw frame.           |
| 5. Bench hook.           | 13. Smooth plane.        |
| 6. Mallet.               | 14. Jack or fore plane.  |
| 7. Miter box.            | 15. Plow plane.          |
| 8. Marking gauge.        | 16. Tool box.            |

In some cases, a suitable shop must be built by the pupils themselves. The benches and equipment must also be frequently made by the pupils owing to the lack of sufficient municipal resources. A teacher who finds himself forced by circumstances to erect a shop and manufacture its furniture and equipment before he has the opportunity of giving the prescribed practice work should so plan his work with respect to each pupil that there will be no serious deviation from a properly graded course theoretically considered. In building a shop, each pupil should be given his work in such a way as to teach him the fundamental processes in the regular order. In making the furniture and equipment the same order should be observed, so that by the time the shop is built and equipped, each pupil will be well grounded in the first steps with tools. This system is slow and difficult, but its adoption is frequently required by local conditions.

School furniture should be made in the following order:

- |                       |                        |
|-----------------------|------------------------|
| 1. School desks.      | 5. Teacher's table.    |
| 2. Blackboard frames. | 5. (a) Teacher's desk. |
| 3. Book chest.        | 6. Bookcase.           |
| 4. Stool.             |                        |

In some municipalities the cost of good lumber is so high in comparison with the wealth of bamboo, rattan, and palm petioles at hand for the asking, that it is advisable to teach the making of furniture from materials both lighter and cheaper than wood. Experiments have been carried on in working up satisfactory models of home furniture in bamboo and rattan. The work is still more or less experimental but it has reached

such a stage that a course has been outlined for this work and may be substituted for the woodworking course in localities which favor such work. The extent of the Chinese trade in this kind of ware and the abundance of materials in these Islands make this field of endeavor rich in possibilities. Wherever local conditions seem to make it advisable, the substitution of the following course in lieu of the regular course is authorized:

## BAMBOO, RATTAN.

- |                               |                                      |
|-------------------------------|--------------------------------------|
| 1. Clothes hanger, bamboo.    | 7. Bed, bamboo.                      |
| 2. Stool, rattan.             | 8. Wardrobe, bamboo.                 |
| 3. Stool, split bamboo.       | 9. Screen, bamboo.                   |
| 4. Footstool, bamboo, rattan. | 10. Washstand, bamboo, rattan, nito. |
| 5. Chair, bamboo.             | 11. Coat and hat tree, bamboo.       |
| 6. Table, bamboo.             | 12. Carving, bamboo.                 |

## ADMINISTRATION.

The shop is directly under the shop teacher, in most cases a trained man, who is responsible through the principal of the school to the supervising teacher.

In provinces having industrial supervisors the shops are frequently inspected and supervised. In addition to this inspection the division superintendent and the industrial inspectors from the General Office make occasional visits.

Teachers for this work are usually graduates of trade schools, returned pensionados from the Philippine School of Arts and Trades, or pupils trained in normal institutes or special classes such as those maintained in Iloilo and Pangasinan.

## INTERMEDIATE SHOPS AND REGULAR TRADE SCHOOLS.

The main object of the primary shop is to teach the pupil the use of tools and the elements of woodworking, while in the

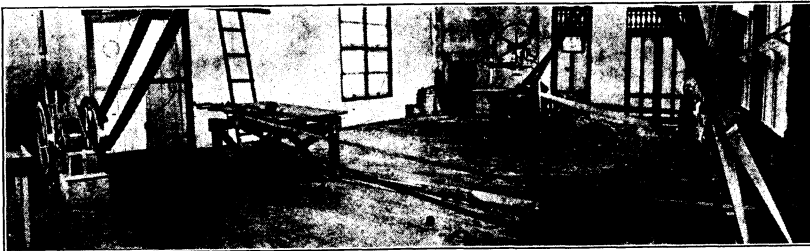


Plate VIII. Regular equipment for school shop.

Notice arrangement with respect to doors and windows. The planer is beyond the band-saw and faces the window on the left.

intermediate grades the pupil acquires sufficient skill to enable him to do fair work in carpentry or cabinetmaking. The



Plate IX. Primary school shop at Candon, Ilocos Sur.

foundation work for all shop and trade courses is the set of exercises prescribed for the primary shop. Pupils entering a school shop or trade school of intermediate grade must begin with the primary work in case they have not already completed such a course.

Twenty-six provincial schools are equipped with woodwork-ing machinery in addition to the regular supply of hand tools which is prescribed for all provincial schools. Fourteen of the schools equipped with machinery have been organized into



Plate X. Class in woodworking, Sorsogon Trade School.

trade schools. It is the policy of the Bureau of Education to encourage the reorganization of intermediate school shops into trade schools wherever local conditions are satisfactory.

A school shop is an institution devoting itself primarily to the training of the hand as supplementary to the training of the mind. It develops a certain manual dexterity for the effect which such training has on the mind and character of the pupil rather than for the purpose of enabling him to earn a livelihood; its aims are cultural rather than vocational. The trade school, on the other hand, is established for the sole purpose of developing skilled workmen. It is believed that the trade school is the type of institution needed in the Islands rather than the ordinary school shop.

The schools in which these shops are operated give the pupil work in English, arithmetic, geography, civics, physiology and



Plate XI. Reading table from school shop of Tarlac and lamp from Capiz. (Genuine tortoise shell is used in the lamp.)

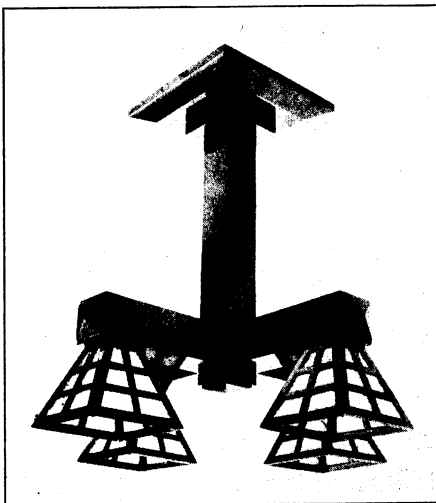


Plate XII. Chandelier of wood and shell, made at the Philippine School of Arts and Trades.

hygiene, and Philippine history and civil government, in Grades V, VI, and VII. In addition to this academic work ninety minutes per day are devoted to shop subjects, as follows: Grade V, drawing and handweaving, basketry, bamboo and rattan work, or woodworking; Grade VI, drawing and gardening or woodworking; Grade VII, drawing and woodworking or gardening. Trade-school pupils take the same amount of English and arithmetic, but in lieu of the remaining

subjects spend one hundred and eighty minutes per day in shop work and drawing.

Out of a total of 17,242 boys in the intermediate grades, some 7,500 were enrolled last year in the shop courses and more than 2,000 in the regular trade classes.

#### EQUIPMENT.

The standard equipment of machinery consists of a 12-horse-power kerosene engine, a 24-inch single surface planer, a band scroll saw, a circular saw, turning lathes, and a grindstone. In addition to the above, several larger schools have swing cutoff saws, spindle molding machines, matching and molding attachments for the planer, buzz planers, etc. Most of the provin-

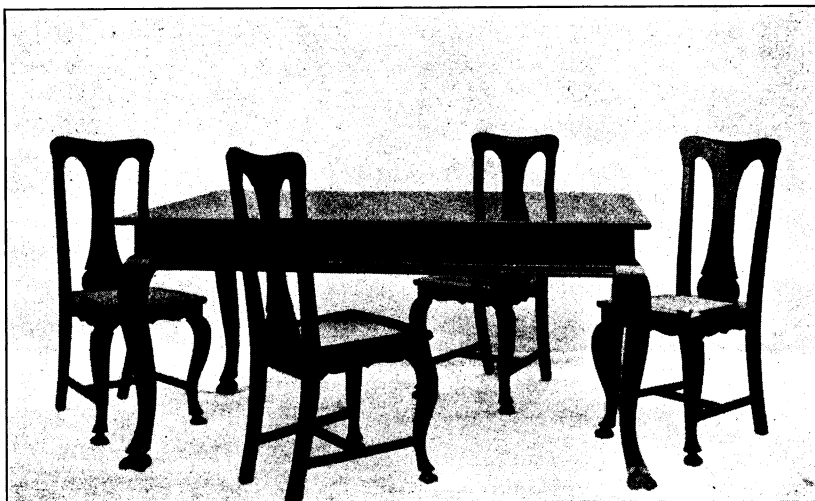


Plate XIII. Library set of red narra, Laguna Trade School.

cial schools have one or more forges with anvils and sets of blacksmithing tools. Iloilo, Pampanga, and Pangasinan are provided with ironworking machinery.

A few provinces seemed unable to bring their shops up to the standard, and so the Bureau recently made an allotment of ₱8,000 for additional tools in order to establish a minimum standard. These tools have nearly all arrived from the United States and are being distributed as rapidly as possible.

#### TEACHERS.

In the following provinces the shop department of the provincial school has been reorganized on the trade school basis, with a separate faculty and student body: Iloilo, Pampanga, Pan-





Plate XIV. Chipping and filing, Philippine School of Arts and Trades, Manila.

gasinan, Cebu, Bulacan, Batangas, Laguna, Oriental Negros, Sorsogon, Ilocos Norte, Leyte, Union, Samar, Bohol. In these schools the teachers are generally apportioned as follows: Shop work, 3 teachers (including principal); drawing, 1 teacher; academic work, 1 teacher. The trade schools in Iloilo, Pampanga, Cebu, and Pangasinan are larger than the other trade schools and have teachers as follows: Iloilo, 11; Pampanga, 9; Cebu, 7; and Pangasinan, 5. In the provincial trade schools about one-third of the teachers are Americans and two-thirds Filipinos. Some of the Filipino teachers have received their preparation in the United States, but the majority of them have come from the larger trade schools, principally the Philippine School of Arts and Trades in Manila.

Each year over fifty selected native teachers and pupils receive a year's instruction in the Philippine School of Arts and Trades at Government expense. Selections are made strictly on merit and the "pensionado" or scholarship student upon his return must teach a period of time equivalent to that during which he enjoyed a scholarship. This pensionado system was introduced four years ago, and in cases where the required preparation covers a period of two years or more, these teachers have gone back to their provinces and done satisfactory work. The law permits the various municipalities to send pensioned pupils to provincial schools under a similar arrangement. During the past six

years all of the advanced pupils in the Iloilo trade school have been required to teach pupils taking elementary work, thus giving them two entire days per week in practice teaching in shop work and drawing under a critic teacher. The difficulty of retaining good teachers is felt here as well as in the United States. Each year the Bureau of Education loses many of its more valuable teachers through the opportunities presented in house building, road and bridge construction, railway work, and many other branches where trained workmen are urgently needed.

#### INSPECTORS.

At the time of the introduction of the trade and shop courses in the various provinces, the Bureau of Education found it necessary to employ machinery inspectors to attend to the proper setting up of machinery and to supervise any repairs or changes which were needed from time to time in places where machinery had been installed. These inspectors have been very useful in keeping the machinery in good running condition so that the schools lose no time in waiting for planed lumber and other prepared stock.

In the Philippines the shutdown of the woodworking machinery in a school is a much more serious matter than it would be in the United States, owing to the fact that outside of Manila all the trade schools must depend upon themselves for mill work. This delay would not be very noticeable in ordinary shop work, but where schools are doing a large amount of commercial work and employing a large percentage of the students at regular

wages, conditions are very similar to those in a well-organized factory where a shutdown for any length of time throws a large number of people out of employment and has a depressing influence upon the community. In order to minimize the effects of a serious break in the machinery at any place, a machinery inspector is employed so that he can be rushed to the assistance of a school whenever a serious mishap occurs. All of the larger provinces have been supplied with machinery equipment, and only two additional

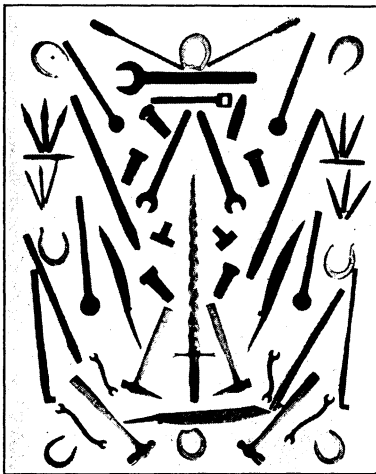


Plate XV. Forge work.

sets of machinery have been ordered during the past year. In the smaller provinces the required conditions for the introduction of machinery are being met very slowly, so that in the future the number of outfits installed will not exceed one or two sets per year. Partly owing to this fact, and also to the good care being taken of the machinery in all the provincial schools, it has been possible to get along with only one machinery inspector during the past year.

In February, 1910, the principal of the Iloilo Trade School was appointed as inspector of provincial trade schools and school shops, with instructions to introduce the commercial work and the accounting system which had been previously worked out under his supervision.

The commercial work and the accounting system of this school were considered by officials of the Bureau of Audits and Bureau of Education, and their principal features were incorporated in a uniform system prescribed for all provincial trade schools and school shops. Several of the regular forms used by provincial treasurers were added in order to harmonize the various operations with the accounts of the provincial treasurer. As a result of this the Bureau of Audits issued a circular in August, 1910, instructing provincial treasurers and others relative to the proper introduction of the system into all provincial school shops and trade schools.

This inspector's work consists principally in the examination of the school organization with respect to management, buildings, equipment, accounts, teaching force, class work, and commercial work. He advises in regard to improvements in buildings, estimates for the year's work, and the securing of funds for supplies, additional buildings, and equipment.

#### INTERMEDIATE COURSE.

In the primary shops, one year of woodworking is given. Beginning pupils in woodworking must commence with the practice work and exercises outlined for the primary shops. When a pupil has completed the primary exercises, he takes up the following intermediate work:

- |  |                           |
|--|---------------------------|
| 1. Through mortise and tenon joint.        | 9. Desk tray.             |
| 2. Blind mortise and tenon joint.          | 10. Panel joint.          |
| 3. Pencil tray.                            | 11. Dovetail joint.       |
| 4. Lap butt joint.                         | 12. Drawer dovetail.      |
| 5. Small drawer, with lap butt joints.     | 13. Wardrobe with drawer. |
| 6. Clothes cabinet.                        | 14. Lady's writing desk.  |
| 7. Footstool.                              |                           |
| 8. Drawing board, T-square, and triangles. |                           |



Plate XVI. At work on the iron lathes, Philippine School of Arts and Trades.

The trade course is based upon the shop work outlined above, with the addition of commercial work, which is determined largely by the demands of the locality. School and office furniture is continually required by the various branches of the Government, and private orders from people of the community come in faster

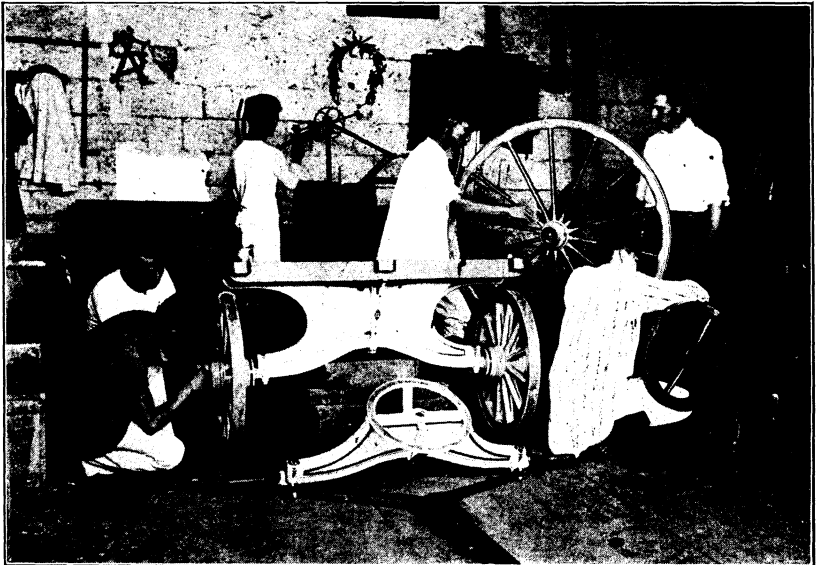


Plate XVII. In the paint shop of the Philippine School of Arts and Trades.

than they can be filled. Before undertaking the construction of the furniture mentioned below, the teacher must satisfy himself that a pupil understands the making of the joints involved before attempting the piece of furniture itself. The following list of school furniture is graded according to difficulty of construction:

- |                            |                               |
|----------------------------|-------------------------------|
| 1. Blackboard frames.      | 9. Book chest.                |
| 2. Drawing boards.         | 10. Filing cases.             |
| 3. School desk, rear.      | 11. Teacher's desk.           |
| 4. School desk, front.     | 12. Bookcase.                 |
| 5. School desk, complete.  | 13. Cupboard.                 |
| 6. Stand for native stove. | 14. Industrial material case. |
| 7. Teacher's table.        | 15. Field desk.               |
| 8. Domestic science table. |                               |

Suggestions for other articles of furniture are: Benches, stools, chairs, tables, beds, racks, writing desks, stands, screens, windows, doors, and other useful and salable articles in demand.

#### COMMERCIAL WORK.

One of the main features of the work of the trade schools is the commercial work. The original idea of the commercial work was to furnish employment for many of the advanced pupils who would otherwise have been forced to leave school and work for lower wages than they could make in the school where they are employed as semiskilled laborers. Pupils work half a day at the commercial work and attend the regular classes the other half day. A very important secondary consideration was the inculcation of the business principles in vogue in regular commercial shops.

Briefly explained, this system allows pupils to take contracts for turning out various articles of furniture ordered by the Government or by private parties. If the work is done outside of school hours, the pupil receives wages based upon the rate paid for similar work by private concerns. The school generally furnishes the material for the furniture or other jobs that have been undertaken, and the cost of the article is determined by adding a surcharge of 20 per cent to the value of labor and material, to cover waste, fuel, and depreciation of equipment.

The popularity of commercial work and the resultant efficiency of the pupils trained under this system led to its introduction not only in the provincial trade schools, but also in the shop departments of all other provincial schools. The extent to which it was introduced depended upon the advancement of the pupils and the ability of the teachers to handle the work.

## COST OF MATERIALS AND VALUE OF OUTPUT.

On account of the impossibility of securing any quantity of seasoned lumber in the Philippines, trade schools that are doing a considerable amount of commercial work must be provided with a large stock of lumber, so as to allow for its proper seasoning before it is worked up into furniture. It has taken years to impress this fact upon the officials who furnish supplies for the regular trade schools, but each year shows a decided increase in the amount of supplies purchased, which, during the past year, amounted to ₱48,932.28. The total appropriations for the twelve



Plate XVIII. In the carpentry shop of the Trade School.

provincial trade schools during the past year were ₱77,369.97. This included not only the supplies above mentioned, but ₱12,257.68 for new buildings and additions to old ones. The balance, ₱16,180.01, was used for clerical assistance, office equipment, janitor service, and various incidental operating expenses. The total amount of articles manufactured during the past year was ₱53,978.98; the value of articles sold was ₱51,835.60. Excluding salaries of teachers the profit on work turned out during this period was ₱15,965.48. Under the present accounting system, the income from trade schools is returned to the provincial treasury, so that it is readily seen that the schools are not a burden on the provinces, but are more than self-supporting in respect to expenditures for supplies and materials.

## THE PHILIPPINE SCHOOL OF ARTS AND TRADES.

The Philippine School of Arts and Trades was organized in 1901 and has grown steadily each year both in respect to enrollment and number of courses. This school is an Insular school and possesses quite a number of characteristics which differentiate it from the provincial schools. The latter offer academic work of intermediate grade only, while this school offers the essentials of both the intermediate and secondary academic courses. The provincial schools provide a three-year course, usually in woodworking alone, whereas this school provides

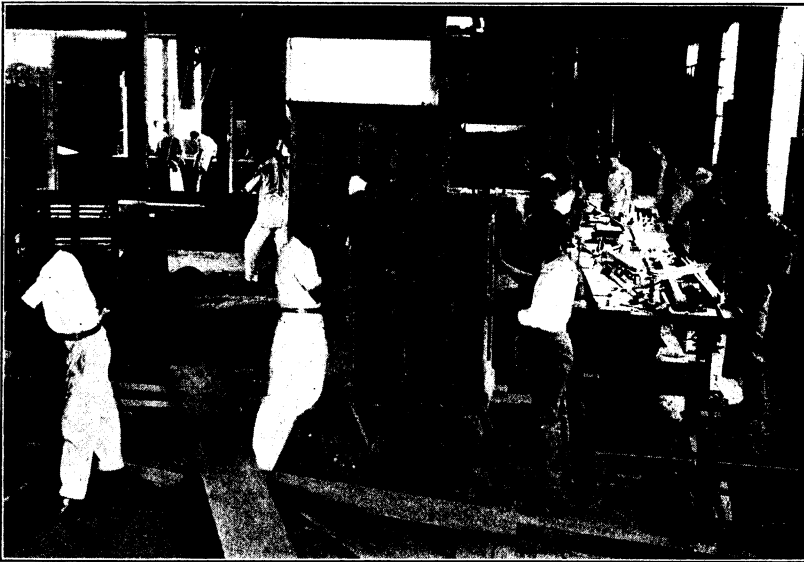


Plate XIX. The wood machinery department.

a four-year course in eleven shop departments. The following table shows the distribution of pupils by courses and grades:

## By courses:

Normal industrial course.....	60
Preparatory engineering ....	12
Drafting .....	20
Cabinetmaking .....	114
Building construction .....	21
Wheelwrighting .....	54
Machine-shop practice .....	105
Stationary engineering .....	36
Automobile operation .....	32
Blacksmithing .....	51
Ceramics .....	38
Total .....	543

## By grades:

Fourth-year secondary .....	4
Third-year secondary .....	9
Second-year secondary .....	48
First-year secondary .....	116
Seventh-grade intermediate	98
Sixth-grade intermediate ....	113
Fifth-grade intermediate ....	155
Total .....	543

Most of the provincial schools draw their pupils from one province alone, but this school has representatives from every province. The present enrollment in the Philippine School of Arts and Trades is 543 pupils, representing the following provinces:

Manila .....	109	Misamis .....	3
Albay .....	9	Mountain .....	2
Antique .....	2	Nueva Ecija .....	4
Bataan .....	1	Nueva Vizcaya .....	2
Batangas .....	9	Occidental Negros .....	4
Bohol .....	3	Oriental Negros .....	3
Bulacan .....	47	Palawan .....	2
Cagayan .....	2	Pampanga .....	42
Camarines .....	3	Pangasinan .....	23
Capiz .....	9	Rizal .....	61
Cavite .....	17	Samar .....	8
Cebu .....	11	Sorsogon .....	9
Ilocos Norte .....	36	Surigao .....	1
Ilocos Sur .....	11	Tarlac .....	9
Iloilo .....	7	Tayabas .....	12
Isabela .....	4	Union .....	22
Laguna .....	21	Zambales .....	11
Leyte .....	23		
Mindoro .....	1	Total .....	543

#### AIM.

The courses are designed primarily to train young men to earn a livelihood by following a trade. The preparatory engineering course is the only one not so designed. It is given because there is no other institution in the Islands prepared to give the shop work which an engineering student should receive.

Only able-bodied boys who have finished at least the primary course are admitted. The average entrance age is a trifle over seventeen years. Upon matriculation, each applicant for admission must sign a written statement to the effect that he intends to follow a trade upon graduation. Graduates receive certificates upon the satisfactory completion of a four-year shop course. Graduates who have also completed the academic work prescribed for the first year of the secondary course or more are entitled to a diploma only after a year's successful experience in their chosen trades. Graduates of the normal industrial course who complete all of the prescribed secondary work are eligible to civil-service status as junior industrial teachers without further examination.

No pupil is allowed to remain more than two years in the same grade. In case of inability to pass the second examina-



tion, the pupil must leave school unless his shop instructor recommends him for proficiency in shop work, in which case he is continued as a "special," dropping his academic work and devoting his whole time to shop work and drawing. As soon as a pupil is found to possess no mechanical bent, he is immediately advised to leave school, no matter what his academic standing may be.

#### EQUIPMENT.

*Drafting Department.*—Two large rooms, well lighted, containing a floor space of 250 square meters, are used for instruction in drawing and design. A separate room containing the necessary apparatus is used for blue printing. Tracings of over five hundred valuable drawings are filed and referred to by a card catalogue. A card index is kept showing the record of all pupils who enter this department. The department is equipped with eighty individual drawing tables, models of various kinds, filing cases for tracings, drawings, and blue prints, and storage cases for instruments and supplies. Each pupil has a drawing board, T square, and a complete set of instruments; in addition, curves, protractors, easels, a pantograph, etc., are used as occasion demands.

*Machine Shop Practice.*—The shop is equipped with one 14-inch and one 20-inch American lathe, one 16-inch Manning, Maxwell and Moore lathe, four 12-inch Niles-Bement lathes, one American shaper, one Le Blonde milling machine, one American crank shaper, one Pratt and Whitney crank shaper, one Sigourney sensitive drill, one Niles-



Plate XX. A popular porch chair made in the Cuyo school shop.

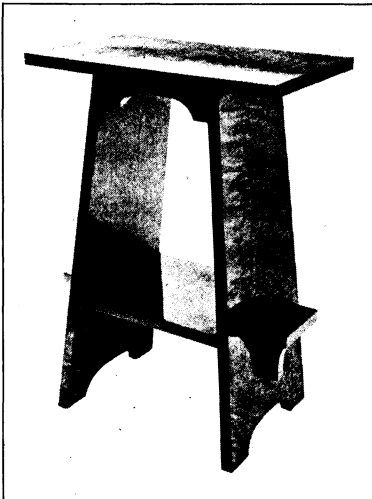


Plate XXI. A magazine stand.

Bement-Pond 24-inch power drill press, one Barnes 25-inch power drill press, one Greenard arbor press, and one Diamond power emery wheel.

*Woodworking.*—The woodworking department occupies two large shops. The department for first-year pupils is equipped with a full assortment of hand tools and double work benches. After the first or second year, depending upon individual proficiency, the pupil advances to the wood-machine department which is furnished with one Fay and Egan 26-inch planer, one Oliver hand jointer, one Fay and Egan circular-saw frame, seven Putman 10-inch lathes, two Putman 18-inch lathes, one Fay and Egan 7-inch lathe, one Fay and Egan molding machine, one Oliver wood trimmer, one Fay and Egan band saw, one automatic knife grinder, one power emery wheel, one automatic band-saw sharpener, and one 25-horsepower steam engine and boiler.

*Wheelwrighting.*—The wheelwrighting department occupies two large rooms, one for the shop and one for painting. The shop is plentifully equipped with a full line of work benches and hand tools in addition to a hub-boring machine and a tenon machine. All of the machines in the wood-machine department are also available for use.

*Blacksmithing.*—The shop is 110 feet by 36 feet wide. It is equipped with ten concrete forges made by the pupils themselves.

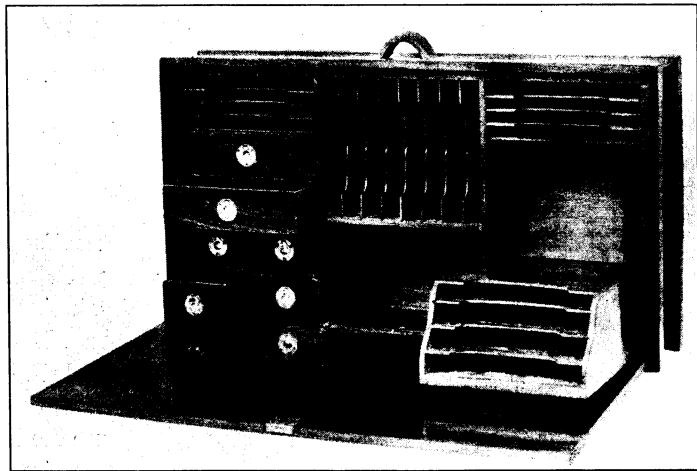


Plate XXII. Portable filing case of tindalo, Leyte Trade School.

The blast is furnished to the fires by a blower operated by steam power. Each forge is equipped with one anvil, one tool stand, hammers, tongs, pincers, flatters, fullers, punches, and round



Plate XXIII. Wood turning, Philippine School of Arts and Trades.

and cold chisels. The shop is also equipped with a hand drill, a Niles-Bement-Pond 1,500-pound steam hammer, and a swinging crane to handle the heavy forgings. The power drill in the machine shop is used whenever occasion demands. No pupil is allowed to use the steam hammer until he has learned to swing a sledge. Thus the use of machinery does not preclude the important hand skill which every blacksmith must possess.

*Ceramics.*—This department is equipped with twelve potters' wheels, sets of molds, clay-refining apparatus, iron glaze mill, ball grinder, lathe, polisher, cup machine, plate and saucer machine, large kiln, and a small test kiln. The building, potters' wheels, blunger, and settling tank were made by the pupils of the woodworking department. The models, kilns, and all kiln furniture were made by the pupils in ceramics.

#### PLAN OF INSTRUCTION.

The school day consists of six hours and forty-five minutes, of which three hours are spent in shop work and the balance in academic work and drawing.

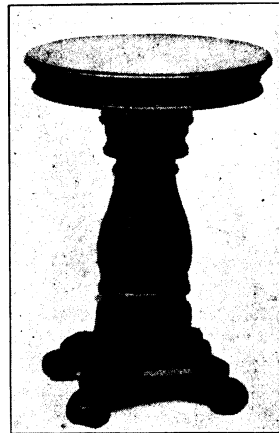


Plate XXIV. A tindalo pedestal for a heavy vase.

The following extract from the latest catalogue explains the methods in vogue in the school: "In arithmetic, stress is laid upon practical problems which are submitted by the shop instructors, graded by the academic teachers, and taught either in lieu of or supplementary to the regular texts. The problems cover various phases of all trades taught in the school, deal almost exclusively with articles and affairs pertaining to local conditions, and make use of current market prices and measures. In language work, phrases, sentences, paragraphs, and themes dealing with shop work are encouraged. In addition to the common words found in the regular reading texts, a spelling list of all shop tools, materials, and equipment used in each trade has been compiled and made an essential part of the curriculum.

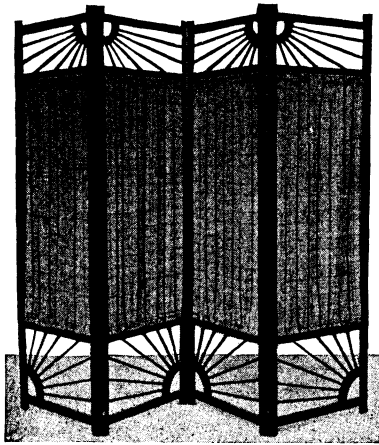


Plate XXV. Folding screen of narra and Ilocano cloth.

In reading, emphasis is placed upon literature dealing with industrial subjects, with the purpose not only of widening the pupil's practical knowledge of the trades, but also of inculcating the dignity of labor. Current newspapers and magazines are read in class so as to stimulate the reading habit and to enable the pupils to grasp the meaning of articles written in what is to them a foreign language. In civil government, the classes review their work by organizing school councils, provincial boards, and insular as-

semblies. After the first year's work in each shop, the pupils are advanced in commercial work as rapidly as possible. For all commercial jobs, work orders are made out, labor is reported on daily time slips, materials are issued only by the storekeeper on properly executed requisitions, and tools are checked in and out by pupil toolkeepers. Although emphasis is laid strongly upon commercial work and many phases of modern shop organization are maintained, yet the use of carefully worked out exercises in the first year, the judicious intermingling of class and individual exercises, and the correlation of the drawing and academic branches with the shop work, make a real educational institution and not a factory with its usual attendant evils."

The following table sets forth in detail the value of the com-

mercial work performed during the last school year. By "class labor" is meant labor performed during the regular class hours for which the pupils are not remunerated. "Paid labor" indicates the amount paid to pupils for work performed outside of the prescribed daily program of six hours and forty-five minutes.

Shops.	Materials.	Class labor.	Paid labor.	Total net cost.	Selling price.
Finishing .....	P584.49	P638.98	P146.34	P1,369.81	-----
Automobile .....	1,975.63	1,058.21	394.90	3,428.74	-----
Wood machine .....	10,915.76	1,555.46	1,834.75	14,305.97	-----
Wood bench .....	560.07	265.60	6.53	832.20	-----
Wheelwrighting .....	624.26	593.22	288.26	1,505.74	-----
Iron machine .....	834.90	1,712.48	274.06	2,821.44	-----
Drawing .....	157.79	114.46	306.48	578.73	-----
Blacksmithing .....	394.71	410.06	12.45	817.22	-----
Pottery .....	193.30	48.18	-----	241.48	-----
Total .....	16,240.91	6,396.65	3,263.77	25,901.33	P33,134.43

As many of the jobs run through different shops, the selling price is not determined until the articles are completed and no record is kept of the profit accruing to each shop. In connection with these figures, it should be noted that the wood-bench department is composed solely of beginners and that the pottery department has just completed its first year of existence.

#### TEACHERS.

The academic department has six American teachers and one Filipino teacher. The industrial departments employ nine

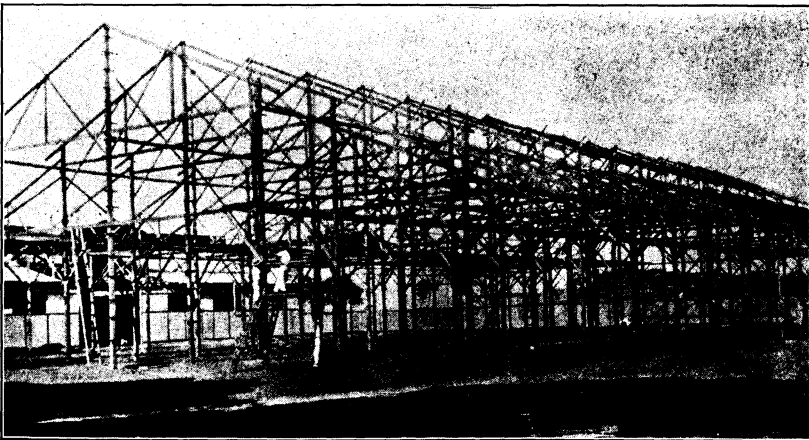


Plate XXVI. Bureau of Education Building at the Philippine Exposition of 1912.

Constructed by pupils of the Philippine School of Arts and Trades.

Americans and eleven Filipinos, the latter including the engineer, the storekeeper, and the time clerk.

## SCHOOL RESTAURANT.

One of the special features of the school is the noonday lunch, financed by the Athletic Association. A good native cook and one assistant are employed. One hundred and fifty pupils and eight teachers take their noon lunch at the school restaurant, while some further fifty-odd pupils buy something each day. The staples consist of soup, rice, fish or meat, and homemade bread. These are sold at actual cost or at a loss, while other items, such as cake, coffee, soft drinks, ices, etc., are sold at a small profit. This system enables the poorer pupils to get a substantial hot lunch at rock-bottom prices. At present, the pupils are purchasing



Plate XXVII. Dining-room set made by pensionados in the Philippine School of Arts and Trades.

daily 150 portions of rice, 90 of fish or meat, 5 gallons of hot soup, an equal amount of ice or sherbet, 350 rolls, 200 small pieces of cake, and other minor articles. Each day some extra dish is offered, such as baked beans, tomatoes, or the like. One sack of rice is consumed in three meals.

## LAST YEAR'S GRADUATES.

Graduates of the school have no difficulty in securing employment at an average salary of fifty pesos per month. Last year eighteen pupils from the automobile department secured positions, fourteen as chauffeurs and four as mechanics. The Bu-

reau of Education employs most of the graduates in woodwork-  
ing. Out of last year's class of twenty-five graduates, twenty  
are now teaching for the Bureau of Education. One went to  
Butuan in Mindanao, one to the Batanes, one to the Lolomboy  
school, and the remainder were scattered throughout the Islands.  
Four of the graduates are taking advanced work, and one is  
employed as a draftsman.

Out of the nine members of last year's graduating class in  
machine shop practice, one is continuing his studies, one is  
teaching, five are working for private concerns, and two have  
not reported their whereabouts.

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This Bureau has recently received a number of school journals  
published by several American Indian schools in the United  
States. As a general rule, the journals themselves are printed  
by the students in these schools and are concrete evidences of  
the kind of instruction which the young Indian students are  
receiving. Emphasis is placed upon the trades and gardening.  
The object is to train the students of these schools for a better  
and more independent life than their fathers may have had, and  
to fit them to fill some useful place in life; to be worthy and  
self-supporting citizens of their country, rather than helpless  
charges as in the past. The Indian schools turn out lawyers and  
doctors; but they produce in far greater numbers farmers and  
mechanics; and the record of graduates in after life, when they  
settle down to lives of usefulness and productiveness, is gratify-  
ing indeed.

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"Introduce a little active participation in the care of plants  
and grounds and at once to each and every child the garden  
becomes 'our' garden, and an injury to it a personal affair;  
any praise or merit becomes a comment on something 'I made  
or helped make.' This brings out the care of public property,  
consideration for others and responsibility toward public good."  
—M. Louise Greene.

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"Education is beginning to have a real meaning; it is begin-  
ning to teach subject-matter in terms of actual daily life and  
is taking hold of every factor that means much to the people."  
—Arthur D. Dean.

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## THE SPECIAL INTERMEDIATE COURSES OF STUDY.

JOHN D. DEHUFF, Superintendent of City Schools, Manila.

"To be poor in a wealthy country, to be sick in a good climate, to be inefficient among a progressive people, is a sign of unwise educational methods . . . They were not taught to battle with the world or meet life's emergencies."—Thoreau.

THE period of experiment with the special intermediate courses of study is past, and this phase of educational work in the Philippines now stands out as one of the most prominent and successful features of this Bureau's activities. The specialized course had its definite beginnings in 1909. Prior to that time, the academic work of the intermediate grades had been supplemented by a certain amount of work in other lines which might tend to prepare the pupil for special activities after leaving school, or for better earning a livelihood, or merely for better living. The success of even this limited supplementing of the academic line of study was such that both the Director and the division superintendents soon became convinced that for different groups of pupils definite special courses should be organized, in order to meet the civic, industrial, intellectual, and commercial needs of the Philippine population. The diverse interests of any people are such that it was believed and has been proved that even in the intermediate grades it is not too early to give such variation in the lines of study to different pupils or different groups of pupils as may fit some for one thing and some for another, at the same time retaining for all a common basis of academic requirements. The necessity of following such a plan of procedure is all the more evident when we take into consideration that comparatively few pupils continue in school after finishing the intermediate course of study. It is not only in the Philippines that this argument obtains, but in the United States as well.

For the benefit of readers not conversant with conditions in the Philippines, it may also be stated in this connection that the large majority of the pupils of the last year of the intermediate course are boys and girls of almost if not quite mature years, so that in so far as age is concerned, upon graduating



from the intermediate course they are ready to go out into the world and do for themselves.

The question of specializing the work of the intermediate grades came to be the subject of serious consideration on the part of the former Director and his corps of division superintendents, especially during the early months of 1909. It was thoroughly discussed at the superintendents' convention in Baguio in May of that year, with the result that a few weeks later, the Director issued circular No. 70, announcing and promulgating the special intermediate courses of study in much the same form as they now stand. The following paragraphs are quoted from that circular, as a succinct statement of the conditions and arguments which led up to the promulgating of these courses:

At the last convention at Baguio the plan was discussed of specializing the intermediate course so as to enable a pupil to secure adequate training in shop work, farming, domestic science, or in preparation for teaching. The plan met with general approval. It would seem to have much to recommend it. The first object in sending a child to school is that he may learn to read, write, and cipher. This object may be attained by three or four years of constant attendance at school under good instruction. This much once gained, the child whose further education must be limited in amount should have the choice of what his further study shall be and to what it will lead. The great mass of people the world over get no more than an elementary schooling of three or four years. In the United States the school life of the average child was 4.1 years in 1900. American public-school statistics show a startling falling off from attendance in the last grades of the grammar school. The average boy is not interested in a school course which, after teaching him to read and write, appears to conduct him to no definite calling. In the United States he drops out of school at about the sixth or seventh grade. His schooling has trained him for no particular kind of usefulness; he belongs to the class of unskilled and untrained labor.

These considerations are presented to suggest that not merely here in the Philippines, but in the United States as well, a differentiation of the instruction in the last grades of the grammar-school course would seem to be highly desirable. Such a purpose as this has been aimed at here since the organization of our courses of study. The intermediate school was separated in 1904 from the primary school course in order to give it a distinct and practical character. From the very first, it was provided that the boy and the girl should receive instruction not only in the common branches, but in elementary science, and in such subjects as agriculture, tool-work, mechanical drawing, and housekeeping. But the effort to include all of these subjects in the intermediate training of every pupil threatens to result in overloading the course and in an insufficient training in the special branches pursued. Accordingly, hereafter the following intermediate courses will be recognized.

Then followed the outline of six separate courses of study for intermediate grades: the general course, the course for teaching, the course in farming, the trade course, the course in housekeeping and household arts, and the course for business.

The general course as announced was simply a continuation of the intermediate course of study as prescribed in former years. It provided for three years in reading, three in grammar and composition, three in arithmetic, two in geography, one in plant life, one in animal life or agriculture, one in Philippine history and government, one in physiology and hygiene, and three in manual training or other industrial work (for girls, housekeeping and household arts), and included drawing and music.

The course for teaching provided for three years each in reading, grammar and composition, and arithmetic; two in geography; one in plant life; one in agriculture and gardening; one in physiology and hygiene; two in music and drawing; one in Philippine history and government; one in school management and practice of teaching; one in instruction in native minor industries; and for the girls one year in housekeeping and household arts.

The course in farming provided for three years each in reading, grammar and composition, and arithmetic; two in geography; one in plant life; one in the theory of the elements of agriculture; one in physiology and hygiene; one in Philippine history and government; and three years of three periods daily in actual gardening and farm work.

The trade course provided for three years each in English and arithmetic, two in geography, three in drawing, one in Philippine history and government, and three years of four periods daily in shop work.

The course in housekeeping and household arts provided for three years each in English and arithmetic, two in geography, one in Philippine history and government, three in sewing and garment-making, one in physiology and hygiene, two in weaving, one in cooking, and one in nursing and the care of infants.

The course for business provided for three years in reading, two years in grammar and composition, two years in ordinary arithmetic, one year in business arithmetic, two years in geography, one year in handwriting and plain lettering, one in spelling and dictation, one year in business correspondence, two years in bookkeeping, one year in commercial geography, one year in Philippine history and government, and three years in typewriting.

A review of these courses will show that the lines of work

common to all are reading, arithmetic, and grammar and composition, but that after these the pupil in each distinct course is given such lines of instruction as tend to specially fit him for some particular sphere of practical usefulness.

Disregarding a few details of really minor importance, no great difficulty was encountered in establishing one or more of these special courses in centers where intermediate work was already going on. In most of the provincial high schools, where, as a rule, intermediate classes were carried as an adjunct to the high school proper, instruction in manual training and domestic science had been given in connection with the old general course for several years, and the work of organizing the boys into classes taking the special trade course, and the girls into classes taking the special course in housekeeping and household arts was merely a matter of dropping or modifying one or two lines of academic work and increasing the special work in the proportion in which the academic work had been decreased.

The teaching course was perhaps the easiest of all to establish, as it involved but little change from the general course other than that of providing for training classes of primary children, in order that actual practice work in teaching might be given. The course in farming is given only in schools connected with the various school farms of this Bureau. The course in housekeeping and household arts, having almost exactly the same proportion of academic and industrial work as the trade course or the farming course, may easily be given in connection with either one of those courses, as the teachers who handle the academic work in one course can handle it in the other at the same time. As a matter of fact these special courses were established and put into running order with scarcely any necessity of an increase in the teaching force, so that by the close of the year 1909-10, a fair percentage of all the intermediate schools had done something creditable in the way of departing from the former almost purely academic line of procedure.

A year of experimentation with the special courses of study as promulgated in 1909 served to give a line on any defects in the plan; and when the comment of superintendents and teachers on the workings of the courses for that year had been summed up, it was found that the general impression was that the proportion of academic work was too great and that some of the subjects might as well be eliminated or combined with others. To this end circular No. 142, series 1910, was published by the present Director of Education, announcing the courses of study in a somewhat modified and more definite form. In that form

these courses continued to be given until the close of the school year 1911-12, although many were of the opinion that the proportion of academic work had not as yet been sufficiently reduced.

In December, 1911, a committee was appointed to go over these courses carefully and make definite recommendation as to further changes. This committee finished its work at Baguio in May, 1912, recommending some changes which have been thought to be almost radical. The principal change recommended is that of the reduction of the academic work of the general course to four subjects daily. This involves the elimination from Grade V of plant life as a separate subject; the elimination from Grade VI of animal life as a separate subject; the reduction in time to be given to geography from two years to one year, this to be given in Grade V; and the assignment of the subject of physiology and hygiene and sanitation to Grade VI instead of Grade VII. In addition to this the committee decided to recommend the definite requirement of one year of basketry, bamboo and rattan work or hand weaving for Grade V; one year of gardening for Grade VI; one year of woodworking for Grade VII; and the combining of the theory of the elements of agriculture, formerly given as a separate academic subject in Grade VI, with the general industrial subject of gardening. A few minor changes in the trade course, the farming course, and the course in housekeeping and household arts were also recommended.

With the exception of the course in farming, the recommendations of this committee have not as yet been accepted by the Director, having been submitted to the field for general comment. The following scheme will illustrate the several courses as they now stand and as recommended for change by this committee.

*General course, as at present.*

	Grade V.	Grade VI.	Grade VII.
Pe- riods of 40 minutes each.	Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
	Reading and Spelling.	Reading and Spelling.	Reading and Spelling.
	Arithmetic.	Arithmetic.	Arithmetic.
	Geography.	Geography.	History and Government.
	Plant Life.	Animal Life— $\frac{1}{2}$ year. Agriculture— $\frac{1}{2}$ year.	Physiology and Hygiene and Sanitation.
	Music—20 minutes three times a week.	Music—20 minutes three times a week.	Music—20 minutes three times a week.
Double period.	Drawing—twice a week. Industrial Work—three times a week. Girls, Housekeeping, etc.	Drawing—twice a week. Industrial Work—three times a week. Girls, Housekeeping, etc.	Drawing—twice a week. Industrial Work—three times a week. Girls, Housekeeping, etc.

*General course, as proposed for revision.*

	Grade V.	Grade VI.	Grade VII.
Pe- riods of 40 minutes each.	Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
	Reading and Spelling.	Reading and Spelling.	Reading and Spelling.
	Arithmetic.	Arithmetic.	Arithmetic.
	Geography.	Physiology and Hygiene and Sanitation.	History and Government.
	Music—three 20-minute periods a week. Writing—two 20-minute periods a week.	Music—three 20-minute periods a week.	Music—three 20-minute periods a week.
Double period.	Drawing—boys and girls once a week. Industrial Work—four times a week. Boys, Basketry, Hand weaving. Girls, Housekeeping, etc.	Drawing—boys and girls once a week. Industrial Work—four times a week. Boys, Gardening. Girls, Housekeeping.	Drawing—boys and girls once a week. Industrial Work—four times a week. Boys, Woodworking. Girls, Housekeeping, etc.

*Course for teaching, as at present.*

	Grade V.	Grade VI.	Grade VII.
Pe- riods of 40 minutes each.	Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
	Reading and Spelling.	Reading and Spelling.	Reading and Spelling.
	Arithmetic.	Arithmetic.	Arithmetic.
	Geography.	Geography.	Physiology and Hygiene.
	Plant Life.	Music—three full single periods a week. Drawing—two double periods a week.	History and Government.
	Music—three full periods a week.		Practice Teaching.
Double period.	Drawing—twice a week. Industrial Work—boys, same as for general course. Girls, Hand-weaving, Lace making or Embroidery.	Industrial Work. Boys, Gardening. Girls, Housekeeping, etc.	School Management and Methods of Teaching—three single periods a week. Drawing—two double periods a week.

*Course for teaching, as recommended for revision.*

	Grade V.	Grade VI.	Grade VII.
Pe- riods of 40 minutes each.	Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
	Reading and Spelling.	Reading and Spelling.	Reading and Spelling.
	Arithmetic.	Arithmetic.	Arithmetic.
	Geography.	Physiology and Hygiene and Sanitation.	History and Government.
	Music—three 20-minute periods, and Writing two 20-minute periods a week.	Music and Writing, same as Grade V.	Writing—two periods a week. School Management, etc.—three periods a week.
	Study period.	Study period.	Study period.
Double period.	Drawing—once a week. Industrial Work—four times a week. Boys, same as for general course. Girls, Lace making and Embroidery.	Drawing—once a week. Industrial Work—four times a week. Boys, Gardening. Girls, Housekeeping, etc.	Study period.

*The course in farming, as per Circular No. 142, series 1910.*

	Grade V.	Grade VI.	Grade VII.
Pe- riods of 40 minutes each.	Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
	Reading and Spelling.	Reading and Spelling.	Reading and Spelling.
	Arithmetic.	Arithmetic.	Arithmetic—three double periods a week.
	Geography.	Agriculture—two double periods a week.	Blacksmithing—two double periods a week.
	Plant Life.	Mechanical Sketching—one double period a week. Carpentry—two double periods a week.	Farm Work—four consecutive periods daily.
Triple period.	Farm Work.	Farm Work.	

*The course in farming, as recommended for revision, and tentatively authorized by Circular No. 71, series 1912.*

Grade V.	Grade VI.	Grade VII.
Day to be divided into seven or eight periods. One period daily each in grammar and composition, reading and spelling, arithmetic, and agriculture. One study period and three consecutive periods in farm work, or three or four periods in farm work, according to how the day is divided.	Same division of time and same subjects in general as for Grade V.	Same division of time and same subjects in general as for Grades V and VI, except that theory of agriculture is given a double period daily in order to carry on laboratory work. Farm work correspondingly decreased by one period.

*The trade course, as at present.*

Grade V.	Grade VI.	Grade VII.
Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
Arithmetic.	Arithmetic.	Arithmetic.
Reading and Spelling.	Reading and Spelling—double period twice a week. Drawing—double period three times a week.	Reading and Spelling—double period twice a week. Drawing—double period twice a week. Estimating—double period once a week.
Drawing—double period daily.		
Shop Work—three consecutive periods daily.	Shop Work—four consecutive periods daily.	Shop Work—four consecutive periods daily.

*The trade course, as recommended for revision.*

Grade V.	Grade VI.	Grade VII.
Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
Arithmetic.	Arithmetic.	Arithmetic.
Reading and Spelling.	Reading and Spelling.	Reading and Spelling—double period twice a week. Drawing—double period twice a week. Estimating—double period once a week.
Drawing—one double period daily.	Drawing—double period three times a week.	
Shop Work—one double period daily.	Shop Work—double period on days when drawing is taken, and three or four consecutive periods on the other two days.	Shop Work—three consecutive periods daily.

*The course in housekeeping and household arts, as at present.*

Grade V.	Grade VI.	Grade VII.
Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
Reading and Spelling.	Reading and Spelling.	Reading and Spelling.
Arithmetic.	Arithmetic.	Arithmetic.
Hygiene and Home Sanitation.	Hygiene and Home Sanitation.	Physiology, Hygiene, and Nursing.
Drawing—two double periods a week. Needlework—two double periods a week. Ethics—one double period a week.	Drawing—two double periods a week. Needlework—two double periods a week. Ethics—one double period a week.	Drawing—two double periods a week. Weaving—two double periods a week. Ethics—one double period a week.
Weaving—two double periods a week. Cooking and Housekeeping—three double periods a week.	Weaving—two double periods a week. Cooking and Housekeeping—three double periods a week.	Needlework—three double periods a week. Cooking and Housekeeping—two double periods a week.

*Same, as recommended for revision.*

Grade V.	Grade VI.	Grade VII.
Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
Reading and Spelling.	Reading and Spelling.	Reading and Spelling.
Arithmetic.	Arithmetic.	Arithmetic.
		Physiology and Hygiene.
Drawing—one double period a week. Needlework—four double periods a week.	Drawing—one double period a week. Needlework—four double periods a week.	Drawing—one double period a week. Needlework—four double periods a week.
Cooking and Housekeeping—three double periods a week. Hygiene and Home Sanitation—one double period a week. Ethics—one double period a week.	Cooking and Housekeeping, Hygiene and Home Sanitation, and Ethics—same allotment of time as in Grade V.	Cooking and Housekeeping—two double periods a week. Ethics—one double period a week.

*The course for business.*

Grade V.	Grade VI.	Grade VII.
Grammar and Composition.	Grammar and Composition.	Business Correspondence.
Reading.	Reading.	Reading.
Arithmetic.	Arithmetic.	Arithmetic.
Geography.	Geography.	Commercial Geography.
Handwriting and plain lettering.	Bookkeeping.	Bookkeeping.
Spelling and Dictation.	Spelling and Dictation.	History and Government.
Typewriting.	Typewriting.	Typewriting.
Study period.	Study period.	Study period.

NOTE.—No change in the course for business has been recommended by the committee on revision.

Of the six courses prescribed for intermediate grades, the general course at once suggests itself as the easiest to give, owing to the fact that it follows the line of least resistance. Its purpose is almost entirely cultural and at the present stage of affairs it may be said to answer to the requirements of a course preparatory to specializing in later years along literary or historical lines. As the time for emphasizing this sort of educational activity in the Philippines is not as yet considered propitious, the Director has urged upon all division superintendents the advisability of organizing as great a number as possible of the pupils of the various intermediate schools into classes taking some one of the special industrial courses.

The course for teaching is also largely cultural in its tendencies. However, a sufficient amount of industrial work and practice teaching is given to enable the graduates to secure some practical notion as to how they will have to apply their store of facts upon undertaking work in the school room. Ordinarily the graduate in the course in teaching will be fitted for taking charge of academic work in the lowest primary grades only. It may seem inappropriate that persons of as low attainments as graduates of the intermediate course should be considered fitted for the teaching service at all. However, when we take into consideration the immense area of the Philippines, their limited resources, the correspondingly limited resources of most of the pupils who seek to enter the teaching service, and the fact that there is but one normal school in the entire archipelago, it may readily be seen how an intermediate graduate may by a little special training be prepared to fill certain positions in the teaching service for which there would otherwise be no adequately trained personnel available at all.

The courses upon which greatest emphasis is now being laid, and from which the greatest and most lasting results are expected, are the course in farming, the trade course, and the course in housekeeping and household arts. The Philippines being essentially agricultural, the first named of these three courses would suggest itself as worthy of much more than ordinary attention on the part of our educators. It is not an easy nor a brief task to put a school of this kind into working order. The establishment of a school farm necessitates the acquisition of an appropriate site, and progress in this connection has been slow, although sure. In these farm schools, aside from the ordinary academic work aimed to enable the pupil to read, write and calculate intelligently, he is taught the theory and practice of



market gardening; poultry raising; building and repair of fences; care of school premises; tree planting; disposal of farm rubbish; the production of staple crops; fertilization; drainage; irrigation; nurseries; care, use, and breeding of farm animals; and fruit culture. One period daily is spent in the school room in the reading and discussion of texts, pamphlets, and bulletins, accompanied by appropriate indoor experimentation in seed selection, planting and germination, this to be followed later by noting the various phenomena attending the growth and development of the plant. Three consecutive periods daily are given over to actual farm work. When the weather does not permit of outdoor work the time is taken up in the farm shop, where the pupils are taught rough sketching, farm carpentry, repair work on buildings and equipment, rough construction work, horseshoeing, and such blacksmithing as is appropriate to the needs of the farm.

The trade course at once suggests the aim of preparing pupils for such mechanical work as carpentry, furniture-making, and ironwork. The necessity of employing Chinese and Japanese carpenters on the private and public construction work in the Philippines, when such work might all just as well be done by Filipinos, was one of the strongest arguments for placing special emphasis on this line of instruction in our schools. Moreover, with the abundant supply of hardwood afforded by these Islands—wood which scarcely has its equal in point of elegance in any other country—there is every reason for believing that a young man properly trained along the lines of furniture-making should be able to become a producer of something which will find a ready sale and which may assist in turning the balance of trade, not only for himself but for his country, in a favorable direction.

The academic work of this course is confined to grammar and composition, writing and spelling, and arithmetic. Abundant training in mechanical drawing, as prescribed in Bureau of Education Bulletin No. 32, *Courses in Mechanical and Freehand Drawing*, is given; and this is made to coördinate in such a manner with the actual shop work that it may be considered as industrial work itself. In general the plan is to have the pupil make a sketch of the article to be constructed, this to be followed up by the actual shop work of producing the article. The list of exercises to be accomplished satisfactorily during this course is mainly as follows: through mortise and tenon joint, blind tenon joint, pencil tray, lap butt joint, small drawer with lap butt joint, clothes cabinet, footstool, drawing board, T-square,

triangles, desk tray, panel joint, dovetail joint, drawer dovetail, wardrobe with drawer, lady's writing desk, school desks, stands for native stoves, teacher's table, domestic science table, book chest, filing cases, teacher's desk, bookcases, cupboards, industrial material cases, and field desks.

Those particularly apt in this work do not find it difficult to complete all these exercises within less than the prescribed time; and for such pupils the construction of an additional list of articles may be required, as, for example, benches, stools, chairs, beds, writing desks, screens, windows, doors, and any other useful and salable articles in demand.

As to the course in housekeeping and household arts, no small number of superintendents and teachers are of the opinion that this line of instruction is eventually going to produce more far reaching results than any other line of instruction that has ever been given in these Islands. The whole aim of this course is to improve the home conditions of the people as a whole. This is a somewhat delicate subject to handle, inasmuch as the results of this line of instruction must inevitably constitute in general a radical change over conditions which have heretofore existed. The teacher is under the particular necessity of approaching the subject from a sympathetic standpoint rather than from one in which she might appear as an apostle of new things, advertising her methods as superior to those already practiced in the home.

The current notion of a course of instruction in domestic science is that of teaching cooking, sewing, and immediately related subjects. Here the work must go much further than that. The inculcation of the doctrine of pure air; sunshine; cleanliness of body, clothing, house and premises; the prevention of disease; active sympathy for the sick and distressed; and proper notions of ethical relations, is quite as necessary a part of the daily program as exercises in cooking, darning, sewing, and embroidery. The aim of this course is such as to make inappropriate the use of the word "science" in denominating it; it deals with the whole range of subjects constituting a knowledge of home-making from a practical standpoint, and for that reason it is called "housekeeping and household arts" rather than domestic science. The sympathetic teacher takes as her basis the conditions as they exist and endeavors to teach the girl how to make the very best of those conditions without added expense to the family, the conditions in many homes being such that only with difficulty could additional equipment be provided.

The special work offered in this course consists of three years

each in needlework, cooking and housekeeping, hygiene and home sanitation, and ethics, the time allotted to these subjects being in the ratio of four, three, one, and one. In addition to this, one double period a week is given to freehand and decorative drawing, and one period daily to grammar and composition, reading and spelling, and arithmetic respectively. Under the subject of needlework is included everything that a girl should know, not only to keep down expense in the home but in order to enable her during any spare moments she may have to be a revenue producer. Plain sewing, darning, mending, garment making of all sorts, embroidery, lace making, Irish crochet, and other similar fancy work are taught throughout the three years. The work in cooking is peculiarly adapted so as to adjust itself to Philippine food supply conditions, the materials and ingredients being almost invariably such as are within the easy reach of a Philippine family of average circumstances. Even the equipment in the school kitchen consists mainly of such simple utensils as one is apt to find in the average Filipino home, and it must be said in this connection that the Filipino is an expert in converting such simple materials as coconut shells, fire clay, tin plate, bamboo, and coarse abaca cloth into very appropriate and useful utensils for kitchen use. The instruction proceeds, for example, upon the theory that if a coconut shell spoon or dipper, which can easily be made by anyone, serves the purpose just as well as a similar utensil made of enamel ware, there is no reason why the expense of buying the latter should be incurred; that if food can be properly prepared on a clay oven there is no reason why the clay oven should not be used rather than to expect the family to equip the kitchen with an expensive oil stove or wood or coal burner. Much of the attention given to cooking is directed toward the proper preparation of rice and corn, which will in all probability continue to be, and should continue to be, the principal cereal foods of the Filipinos for all time to come.

As to housekeeping, the following may be cited as some of the many simple but useful things taught: removing stains, making soap, uses of petroleum, bleaching, dyeing, cloth making. In the work in hygiene and home sanitation particular emphasis is laid upon such subjects as the cleanliness of the person, house and premises; the prevention of disease; the ventilation of the house, particularly the sleeping quarters; the effects of sunlight as a disinfectant in the home and on the premises; the proper use of ordinary disinfectants; the care of the sick; first aid to the injured; treatment of colds; what to do in case of burns and faint-

ing fits; the necessity of keeping the premises rid of flies and mosquitoes; the necessity of exercise; the care and feeding of infants; and such topics in physiology as could not appropriately be discussed in a mixed class.

The work in ethics involves instruction in the elementary principles of character building, manners and right conduct in the home, in school, and on all public occasions.

The course for business has the twofold purpose of fitting young men and women for minor clerkships in government and business offices and of giving appropriate training to such pupils as may find it possible to engage in commercial undertakings for themselves. This course is particularly well adapted to the needs of any pupil who contemplates taking later on some one of the courses offered in the Philippine School of Commerce or in any business school of similar category. Owing to the intermediate pupil's comparatively imperfect knowledge of English, no attempt is made to introduce stenography into this course.

The following table shows the distribution of intermediate pupils of all three grades by courses at the close of the school year 1911-12:

Course.	Boys.	Girls.	Total.
General .....	10,670	3,154	13,824
Teaching .....	2,474	642	3,116
Farming .....	1,984	2	1,986
Trade .....	2,082	-----	2,082
Housekeeping, etc .....	-----	1,403	1,403
Business .....	32	2	34
Total .....	17,242	5,203	22,445

From this table, it will be noticed that almost half of all the intermediate pupils in the Islands are enrolled in the special industrial courses. It should also be remembered in this connection that of the 13,824 pupils enrolled in the general course, practically all of the boys are required to take three years of two periods daily in industrial work (one year in basketry, bamboo and rattan, or handweaving; one in gardening; and one in woodworking; or one year in gardening and two in woodworking, as the present requirements permit), while practically all of the girls are given three years of two periods daily in housekeeping and household arts. The only difference between the special courses in farming, trades, and housekeeping on the one hand and the special industrial work given in connection with the general course on the other is that in the general course the special work is more abbreviated—given in the “short form,” so to speak.

One of the few real difficulties encountered in putting these special courses upon an entirely satisfactory footing is that of appropriate textbooks. Even in the ordinary lines of Philippine school work, the books appropriate for pupils in the States have almost invariably been found inadequate and unsatisfactory. For this reason, all the books now prescribed for primary grades, and nearly all those prescribed for intermediate grades, have been written especially for the Philippine schools. And for the special intermediate courses, not only the textbooks used in the States, but those appropriate for the general intermediate course as well, fail to cover the ground which it is desired to cover. The result is that the Bureau is confronted with the necessity of making textbooks suitable to the needs of these special courses.

A considerable amount of effective work has already been done along this line, but there is still much to be done. Bulletin No. 32, *Courses in Mechanical and Frehand Drawing*, has been published, the plan being such as to meet the needs of the pupils of either the special trade course or the drawing classes in the general course. Bulletin No. 35, *Housekeeping and Household Arts*, has also been published. In its present form, this bulletin serves as a manual for the teacher and is adequate only for classes in housekeeping in the general course. In order that it may be made appropriate for use as a textbook in the special course in housekeeping, this manual will have to be expanded into something like three or four times its present content. The work of expanding this manual into appropriate textbook form is already under way. In lieu of a textbook in woodworking, the Bureau has published in circular form appropriate outlines for this phase of industrial work. The two most pressing needs in this connection at present are a textbook in physiology and hygiene appropriate for the girls in the special course in housekeeping, and one in agriculture for the boys in the special course in farming. Another book that would come in handy would be something along the lines of Philippine basketry, bamboo and rattan work, and handweaving. However, it is anticipated that by means of appropriate articles published in *THE PHILIPPINE CRAFTSMAN*, these lines of industrial education may be satisfactorily handled.

Horace Mann said that when the teacher fails to meet the intellectual needs of the pupil, it is a case of asking for bread and receiving a stone; but that when he fails to meet the spiritual needs of the pupil, it is a case of asking for fish and receiving a serpent. The implantation in the Philippines of a system of education that failed to meet the material needs of the people would be a case of the blind leading the blind.

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## ABACA.<sup>1</sup>

By HUGO H. MILLER, Bureau of Education.

THE name "hemp" as applied to the fiber of *Musa textilis* is a misnomer. The chief cordage fiber of the world was formerly that obtained from the hemp plant *Cannabis sativa* which grows in Europe, the United States, and other temperate regions. Many other fibers have from time to time taken the place of hemp in rope making and have in a general way also been classed as "hemp." Often they have the name of their place of origin prefixed in order to distinguish them from other similar fibers. Such are Mauritius hemp, New Zealand hemp, Sisal hemp, and Manila hemp. The term "hemp" as applied to abaca fiber is not only a misnomer but it is an unfortunate one as far as the foreign viewpoint of our industrial articles is concerned. To those persons to whom the word "hemp" may convey some meaning it brings to mind a coarse gray material of no particular beauty, the chief quality of which is its strength. It will therefore be unfortunate if, in the markets of the world, the beautiful abaca hand bags, the delicate slippers, the fine laces, and such articles made from the fiber of *Musa textilis* are to be advertised and sold under the name "hemp" or "Manila hemp." There is much in a trade name. The word "hemp" has a definite meaning in the world at large and conjures up no impression of beauty and delicacy. The word "abaca" is not known in foreign markets but it is an unusual and catchy word, one for which many a manufacturer would pay a considerable sum. The title of this article has therefore been limited to "abaca" with the hope that the word will be employed by all when referring to articles made from fiber of *Musa textilis*. This will fix the word in foreign markets and associate it with our products and with the Philippine Islands.

The species of banana from which abaca fiber is obtained is indigenous to the Philippines and, commercially speaking, is confined to it. The fiber producing quality of this plant was well known to Filipinos long before the days of Spanish occupation. When Magellan arrived at Cebu the weaving industry was widespread in the Islands. The plant grew wild in much the

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<sup>1</sup> Abaca—pronounced äbäcä'.

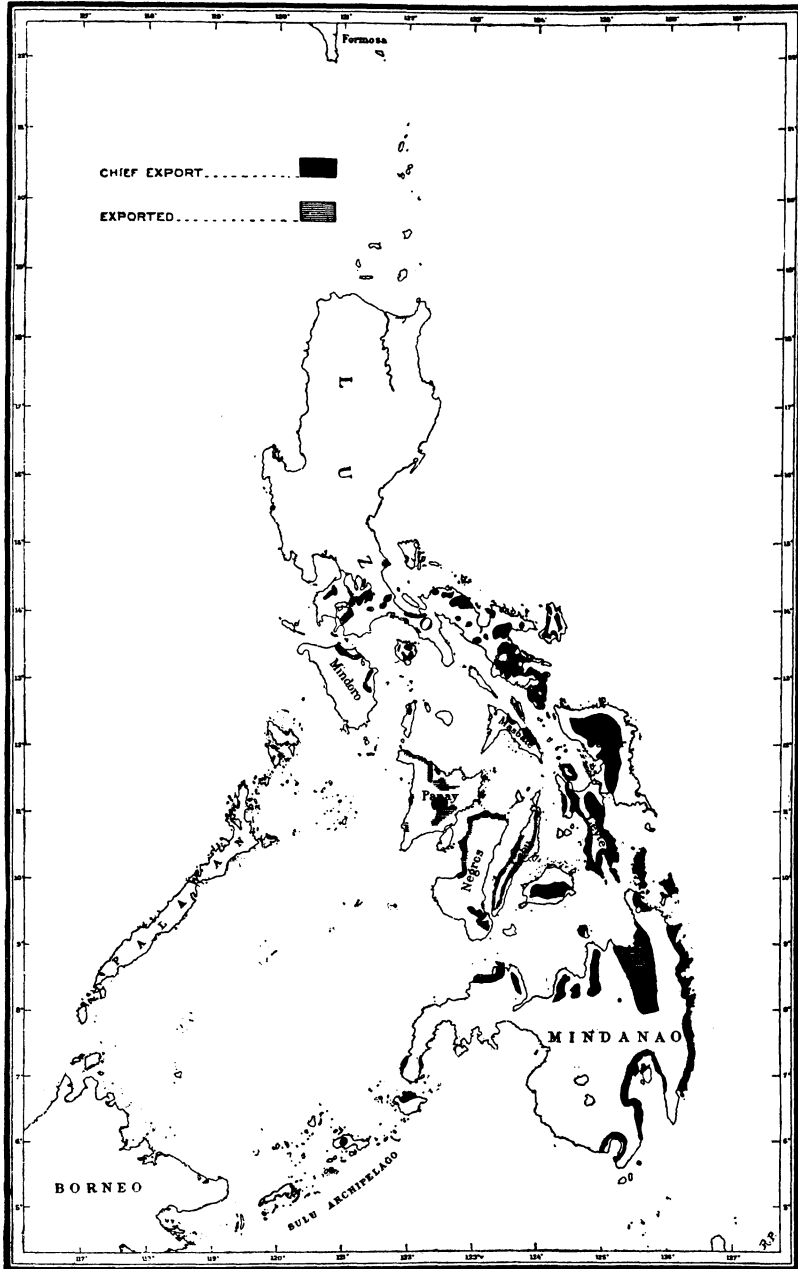


Plate I.

same places in which it is now cultivated. La Perouse (1493-1529) mentions weaving as an industry of the Islands, and Lavezaris (1569-1576) speaks of the great quantities of colored (abaca) cloths produced in the present Province of Albay. Don Francisco Tello especially mentions the abaca cloth of Mindanao. According to Dampier the cloth was used by the poorer people only. The better class used long (cotton) cloth. Abaca cloth did not receive the approval of Gregorio Belin (1629-1649) who calls it "wretched."

Owing to the general knowledge of this industry and the use of the cloth by the natives, the Spanish government made cloth a legal tender for the payment of taxes, each tax payer of the Visayas being required to give a piece of a certain length. In Mindanao this was said to be in payment for protection from the Moros. Although weaving was a common household industry, this peculiar form of money was not easily obtained in some sections. Long arguments concerning the hardships of this class of taxation appeared from time to time in letters to the Spanish king.

All the fiber of this period was obtained from the wild plant. The establishment of fields and the cultivation of hemp began in the early part of the 19th century. It was not until 1825 that any serious attempts were made to develop a foreign market. Methods were of the most primitive sort and in 1850 the exports did not exceed 187,000 kilos. Soon, however, the superiority of the fiber over real hemp caused an increased demand and during the last quarter of the century annual shipments exceeded 880,000 kilos and later statistics show a steady increase to 1901. After war times the industry steadily grew and in 1910 over 170,000,000 kilos of the fiber were exported. The percentage of the value of this export to the total exports from the Philippines has fluctuated from 40 per cent to over 60 per cent.

Abaca requires very fertile and well drained soil, damp atmosphere, and protection from the direct rays of the sun and high winds. Roughly speaking, the production of abaca is of greatest importance on the eastern and southeastern, or Pacific side, of the Philippines below Laguna de Bay. This condition results from the fact that these regions have rainfall practically throughout the year and that typhoons and other high winds are not of very frequent occurrence. In the other smaller isolated regions in which abaca is of commercial importance, certain very local conditions result in continued rainfall or moisture.



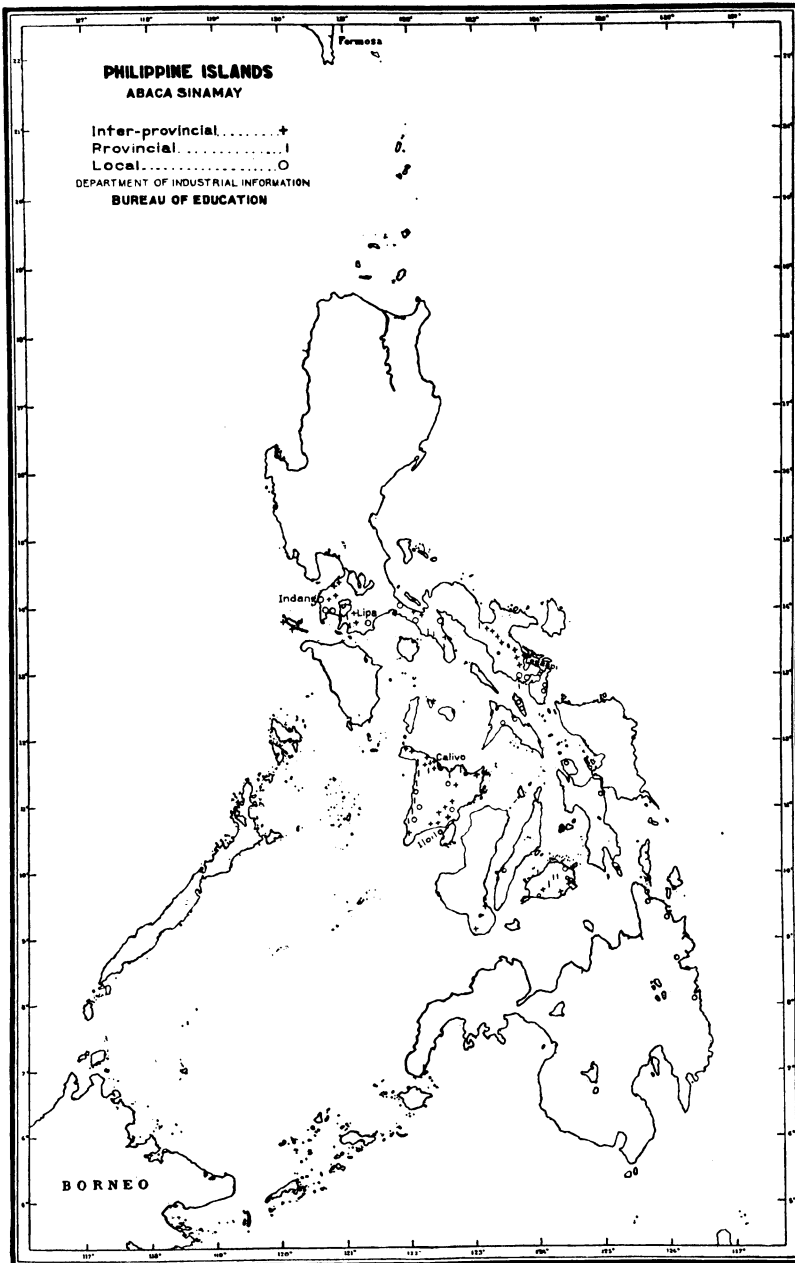


Plate II.

The fiber of abaca is contained in the outer portion of the petiole. This is removed in strips after the petiole has been separated from the stalk. These strips, which when dried produce abaca lupis, consist principally of fiber, pulp, and water. The stripping apparatus by which the fiber is separated is a simple one and consists essentially of a large knife (bolo) pressing down upon a block of wood. Under this knife the strip is drawn and the pulp and much of the water are removed. If a serrated knife is employed, stripping is much easier, but adhering pulp causes the resulting fiber to be dark in color. Abaca stripped under a smooth-edged knife is always better and the more times it is drawn under the knife the whiter is its color. From the outside sheath to the inner ones the fiber decreases in size and strength but increases in softness. The same relation holds true between the older and younger stalks.

For many years the chief use of abaca fiber exported from the Philippines has been in rope making, since it is long, durable, and pliable, resists the action of water, and has a high tensile strength, especially in comparison to its weight. Abaca is used to a certain extent in the production of rope in the Philippines. Fishing nets are also extensively woven from it. Its most important use in these Islands, however, is in the manufacture of sinamay. This is the material from which the pañuelo and camisa worn by native women are usually made. Sinamay may consist purely of abaca or may contain a pattern of colored cotton or mercerized cotton yarns.

The above have been almost the exclusive uses of abaca fiber. Both in foreign countries and in the Philippines the value of this material in the making of more beautiful objects is gradually being recognized, however. The uses to which it is put in the outside world will be discussed in this article and in subsequent issues the products which are made from it in the schools of the Islands will be taken up by various persons. Briefly, it may be stated that the qualities of abaca fiber which particularly make it such a good material for art objects are (1) the ease with which it dyes, (2) the fine tones and the fastness of the colors obtained, (3) its strength, and (4) its resistance to moisture.

#### KNOTTED ABACA AND TAGAL BRAIDS.

It has been stated that abaca fiber is used in France to mix with silk, that experiments are being made to reduce it to such a form that it can be spun, and that it is being woven into table mats, and the like. It is also known that in Japan considerable amounts of stiff cloths are produced and used for stiffening

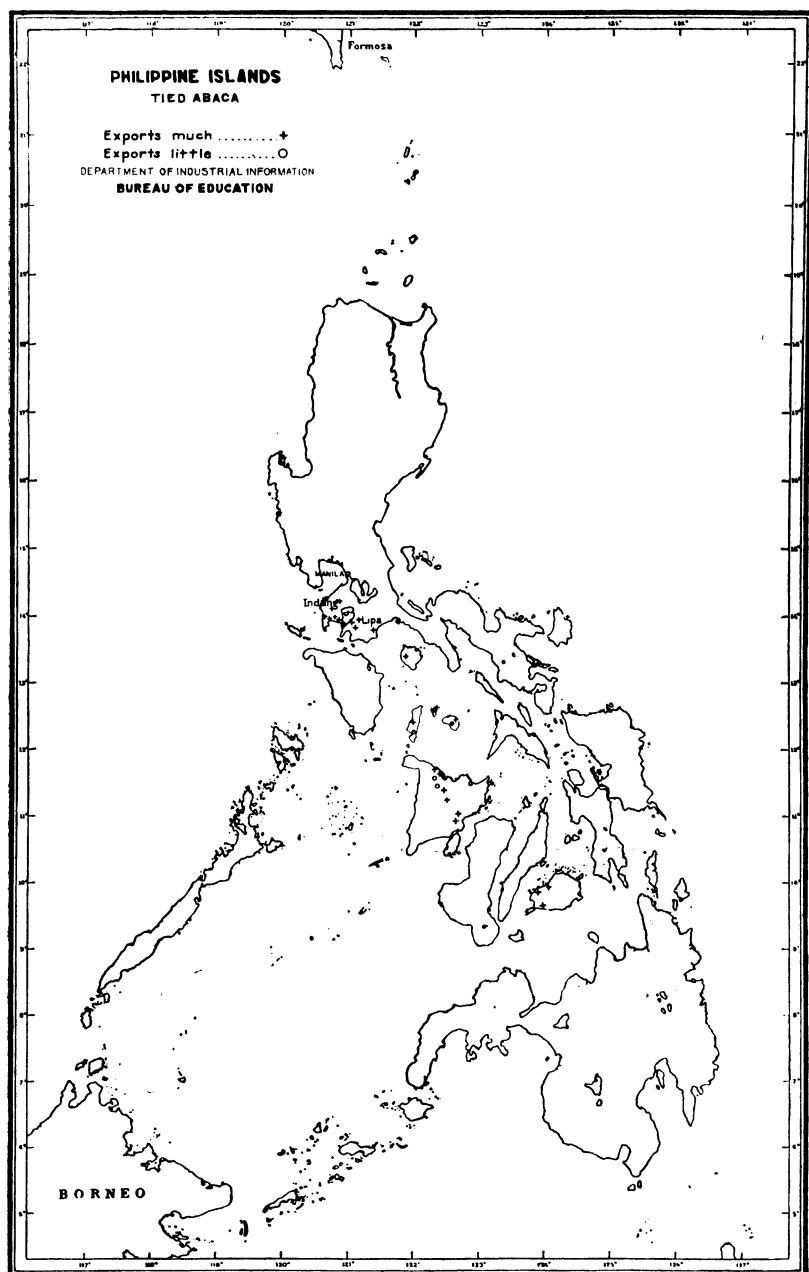


Plate III.

clothing. Much of the coarse abaca cloth exported from the Philippines is also employed for this purpose and for straining. However, by far the greatest portion of the abaca fiber sent out of the Philippines and used for purposes other than rope is woven into braids from which hats are made.

The export of knotted abaca from which these braids are produced depends upon a certain process in the weaving of sinamay. The production of this cloth takes place in a great many towns south of Laguna de Bay, the most important being Indang and neighboring towns in Cavite Province, Bauan in

Batangas Province, Albay and neighboring towns in Albay Province, Calivo and neighboring towns in Capiz Province, and Pototan and neighboring towns in Iloilo Province. The subject of sinamay is too large a one to be treated within the scope of this article. Hence it is limited only to that portion of the processes in its manufacture which bear upon the production of knotted abaca.

The fiber from which sinamay is woven is that which has been most carefully extracted under a straight-edged knife. It is usually sold in *manojos* (fist bundles) and may be bought either classified or unclassified. The bundles of mixed quality are separated into several grades according to their diameter, the classes varying in different lo-



Plate IV. Carrying abaca to market, Indang, Cavite.

calities. In Albay at least 6 grades are recognized, in Cavite 5 classes, and in Lipa 5 classes. There are three ways in which abaca may be sorted. (1) The fibers in a bundle may be separated into the different classes between the fingers and each class tied separately. (2) The fibers may be separated according to quality into three bundles without tying. Then these bundles are separated and each is again classified into two grades. As this is done the coarser fibers are tied at one end in pairs, the finer being separated into another bundle between the fingers. The coarser pairs are then removed

and tied into a continuous yarn. The finer fibers are tied separately. (3) Many workers classify and knot the fibers at the same time. The last process gives the most uniform yarn. The portion of a fiber at the base is much coarser than the part taken from the tip of the stalk. In the most careful tying this is taken into consideration and the fibers are cut so as to classify them into finer and coarser. In tying, the coarse end is knotted to the end of the coarse yarn already completed. The worker then runs the fiber between her fingers until touch tells her that the finer portion of the fiber has been reached. Here another cut is made and this end is tied to the finer yarn.

Abaca intended for sinamay is often beaten before being tied. Where several grades are made as indicated above the fibers are usually tied separately into different baskets. From the finest class very closely woven textile may be made. The coarsest yarns produce mesh-like fabrics suitable for fish nets and the like.

The knot used in tying these fibers may be seen from the illustration. The ends protruding from the knot are cut by means of a sharp bamboo or steel knife. The weavers are so expert in this work that it is doubtful whether any machine could be used to advantage in supplementing the work done by hands. In cotton weaving a patent knotter is often employed for tying knots which break. It is a very cheap and simple instrument, but will probably not be a success with abaca. It was tried out in Batangas Province and the following report was received upon it:



Plate V. Sorting abaca fiber, Lipa, Batangas. The largest bundle will be knotted for export.

"It seems to tie a knot all right and I am satisfied that one could learn in a few hours to tie faster than by the ordinary process. However, as a device for tying abaca it seems to be open to three objections. The knot is much more bulky than that tied by the ordinary process and the ends left by the knife are too long. The latter could be remedied in part by changing the shape of the knife, but the former seems fundamental.

Furthermore, the knot tied by the patent knotter seems to double the fiber in such manner as to weaken it, as in a series of trials the patent knot broke at less tension than that required to break the knot tied by hand."

The name for knotted abaca differs in various localities. In Batangas it is called "dinoctong;" in Cavite "bakingking" when coarse and "labay" when fine. In parts of the Visayas the word "ginoctong" is applied; in Manila it is usually known as "sinagot."

The initial export of knotted abaca from the Philippines took place in the Province of Batangas four or five years ago, the late General Malvar being the first to engage in the industry. Shortly after, the center shifted to Lipa and several large buyers became interested in it. Batangas is still the largest exporter of tied abaca, though a very large amount is exported from Cavite and some from towns in the Visayas. In the trade the Cavite abaca is preferred, because it is the most brilliant and the whitest of all abaca which comes to the Manila market. This undoubtedly results from the composition of the soil in that province.

Batangas and Cavite being the chief centers of the knotted abaca industry, a description of the conditions which exist in these two places would seem appropriate. Lipa and Bauan are the centers of this industry in Batangas, the former being the more important. The abaca is grown around Lipa for the most part, though some of that tied is imported from Cavite.

Formerly there were five grades of abaca, the

- Finest, called "payeran;"
- Second, called "ikalua;"
- Third, called "dumalaga;"
- Fourth, called "batugan;"
- Fifth, called "malalaki."

Now the fourth and fifth classes are joined into one class called "malalaki" and it is this material which is knotted for export. The finer material is not tied except for use at home in weaving sinamay. Much of the "malalaki" is used for rope or exported in the raw state. About 80 per cent of the fiber obtained in Lipa falls under this combined malalaki class. Demand for the finer material does not offer a higher price, and as it is harder to tie and as there are more knots to a kilo, the workers make smaller wages at knotting it than with the larger fiber. Under former conditions, a considerable amount of abaca tied into a continuous yarn was sold to weavers who did not care to prepare their own

materials. This was made into skeins (labay) consisting generally of 960 fibers tied together and wound on a frame some two and one-half feet long. Even to-day the producer generally sells to the small local trader on this basis. Since the material is sold by the kilo and a skein of large fiber weighs much more than one of fine material, buyers continually urge the producers to get large fibers for knotting.

Usually the abaca is separated as explained before, but often fine and coarse fibers are tied together, very fine fibers being doubled to add bulk. The small buyers seem to connive at this practice, though the merchants who deal directly with the firms in Manila and who buy from the small traders on the basis of weight are opposed to it. For some time it was the practice of the Manila merchants to distribute cardboard bobbins and have the provincial buyers deliver the abaca already wound; but, owing to the ease with which deceit could be practiced, this method of buying is not now used. It is fairly easy to inspect a skein of abaca in order to determine whether there are any loose untied ends. It is more difficult, however, to inspect the bobbins so as to determine whether the weaver has placed a quantity of loose material in the inner part of the coil. It is customary for the small dealers to assign numbers to the workers from whom they procured the materials. These persons place their numbers on each bobbin. When a shipment of bobbins is received from a provincial dealer a number are broken open and in this way any loose material is disclosed. On account of the number, the worker who has attempted deceit can be determined. Formerly abaca was pounded before being tied to make it soft and pliable. Abaca knotted and sold for export is seldom treated in this manner.

With the increase in demand for knotted abaca, there has been a substantial rise in the price paid for it. Before American occupation a skein was sold for three or four centavos; later it was worth six centavos. Since it has been sold for export, the price rarely falls below ten centavos and often reaches fourteen or fifteen. With the long coarse fiber such as is ordinarily selected for tying, an expert tyer can easily earn fifty centavos per day. The only capital necessary for engaging in this occupation is a few kilos of abaca and a little piece of sharp steel. After a woman becomes expert she can almost tie in the dark. In fact much of the work is done by the light of the little kerosene lamps without chimneys, commonly used in the homes of the poorer Filipinos.

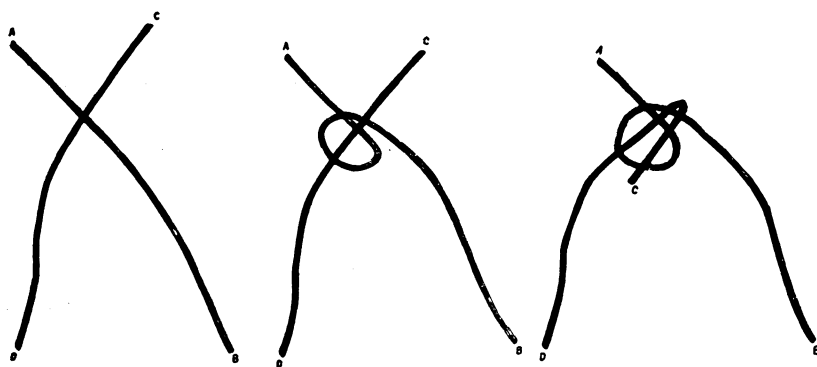


Plate VI. Weaver's knot.

It is impossible to give exact figures on the production of tied abaca in the provinces. When the price is high, or when the usual work of the community is slack, the production increases. During the harvest and planting times, when other work is pressing, the trade in tied abaca falls off. It is safe to say, however, that as long as the present demand for tied abaca continues, Batangas Province is in no danger of a famine. Moreover, the present fairly prosperous condition of the working class of the province is due almost entirely to this industry. Upland rice, the principal crop of a great portion of the province, has failed partially or entirely for three years in succession. Some income is derived from the sale of horses, chickens, and pigs, but the principal source of ready money of at least one-half of the families of the province is the abaca tying industry. During all this period of crop failure, taxes have been paid promptly, land has doubled and trebled in value, new houses have been constructed, new tiendas opened and the old ones enlarged. One feature of this new prosperity is its distribution. The wealth of the Philippines is generally concentrated in the hands of a few. Often a half dozen prominent families will own the greater part of the land of a municipality. Recently in Batangas Province a new tendency has been noted. The lower classes have become land hungry. The truth is they are saving money and are looking for investments near home. Hilly, sterile land underlaid with a volcanic formation that makes it necessary to dig it up with picks and break the lumps with clubs every time a heavy rain washes off the top soil—land that produces a minimum of crop with a maximum of effort—is bought and sold for from ₱150 to ₱200 per hectare. Occasionally a large landowner disposes





Plate VII. Knotting abaca fiber, Pototan, Iloilo.

of part of his land. It is bought, not by another large owner, but by a combination of small capitalists and by them is divided up into small holdings. The money to buy this land is rarely made from the soil. Most small farmers, even in a good year, produce less rice than is consumed by their families, and outside of a few pigs or chickens, no product of the soil is sold. The money for eking out the slender income from the soil and satisfying the land hunger is earned by the wife and children of the household, generally by tying abaca.

One of the chief sources of income in Cavite Province is also

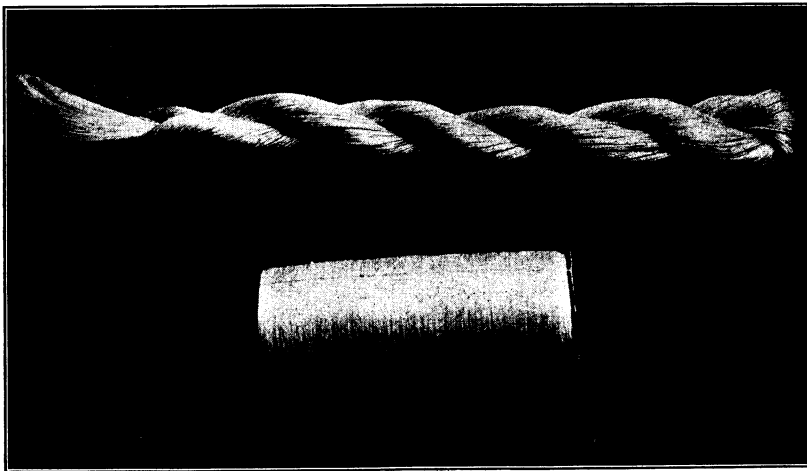


Plate VIII. Skein and spool of knotted abaca.

from the export of knotted abaca. As previously explained the fiber from the highland region is particularly white and lustrous, and is much more in demand than that from Batangas or any other part. For this reason the farming industry of the highland region of Cavite is small in comparison with those of tying abaca and weaving sinamay. It is probable that the latter industry is even of more importance than the knotting of abaca, the amount of sinamay woven depending upon the price of the tied abaca in the market. When the price goes up, more women devote themselves to knotting abaca fiber and

selling it directly to representatives of export houses. When the price of knotted abaca goes down, they find it more profitable to weave and sell the cloth, which is always in great demand.

The land of the highlands of Cavite is divided fairly well into small parcels and fully one-half the workers own plantations from which their raw material is obtained. The rest buy their material at the market. The husbands of some women go out into the country and strip hemp on shares, receiving one-half of the amount made for their work and taking it into their homes to be tied by the women. Women never strip abaca. It is estimated that about one-fiftieth of the total amount of abaca produced in the highlands of Cavite is exported in the form



Plate IX. Pack horse carrying knotted abaca from barrios to Bauan, Batangas.

of knotted abaca. Most of it comes from the towns of Indang, Alfonso, Silang, and Mendes, but it is all marketed at the town of Indang. It is usually taken, by "cargadores" (porters), in the wet season and "carretones" (carts), in the dry season, to Naic, and from there shipped by "banca" (dug-out) to Manila. There is also a large export of loose abaca fiber from Indang to Manila. This material is sent to Japan, where it is tied in the fishing villages.

From Lipa and Indang the tying industry has spread to the towns of Batangas and Cavite Provinces. Many of these do not

produce their own fiber but import it from the highlands. The industry has also been introduced into other places in which sinamay is produced, but the export from these is not nearly so great as from the above-mentioned places. By a comparison of the maps on the production of sinamay and tied abaca it will be seen that many places which produce sinamay still export no quantity of tied abaca. This is particularly true of the Bicol provinces. On the other hand, several exporting houses have introduced the industry into places in which no sinamay is made but in which the people are in need of income additional to agriculture and fishing. Several of these localities are known but are not included because the information is of a confidential character. From this statement it can be seen that the competition among exporters of knotted abaca is very keen.

From the small industry which began a few years ago, the export of knotted abaca from the Philippines has grown to very large proportions and exceeds in amount the money value of several other export products, such as hats, for instance. In 1911 the total value of knotted abaca exported was ₱1,144,026; in the year 1912 this had increased to ₱1,231,538 and was divided among the different countries as follows:

United States .....	₱18,282
England .....	6,480
Austria-Hungary .....	2,880
Belgium .....	57,126
France .....	278,952
Germany .....	26,726
Italy .....	588,054
Switzerland .....	151,096
China .....	1,872
Japan .....	100,070

By far the greater part of this large amount of money goes directly into the hands of the peasant workers of Batangas and Cavite. Thus it can be seen that the statement of the Division Superintendent of Schools for Batangas quoted above is not at all overdrawn. Close to a million pesos must be earned yearly by these people, who are thus becoming economically independent. In both Lipa and Indang the estimated average daily earnings of a woman from tying abaca is 50 centavos, and since this amount is usually earned in addition to the income from agricultural pursuits, it is almost entirely a surplus income.

The abaca suitable for export is usually called "quilat." In Lipa the average price of this material is about 25 centavos per kilo. The average price paid to the worker for knotted abaca

is ₱2.25, the appreciation in the price on account of the knotting being, therefore, about ₱2 per kilo.

The fluctuation in the price of abaca is due to cable requests from Europe and the consequent competition of local buyers. The supply of abaca being a continuous one it is not customary for local exporters to keep a stock on hand. Instead they sell "short," the terms being made by cable from Europe and Japan. European importers allow three months for delivery. All the local exporters receive cabled requests at the same time. Their quotations to provincial dealers and agents, therefore, go up or down simultaneously. The price has been as low as ₱1.80 and



Plate X. Women selling knotted abaca in the market at Indang, Cavite.

as high as ₱3.60 per kilo, depending upon the urgency and amount of foreign requests.

The Bureau of Education became actively interested in knotted abaca over two years ago. The export of this material had been known for some time and there was a vague understanding that it was being used in the manufacture of hats. The matter was taken up in Europe and America and it was found that the material was being woven by machinery into narrow braids intended for the manufacture of expensive hats for women. For a long time, however, it was impossible to determine the mechanism of the machines on which these braids were woven in Switzerland, France, and Italy, the efforts of the correspondents being fruitless. The whole industry in Europe was most carefully guarded as a secret. Attention was then turned to the United States, with the result that the Bureau was put in

touch with the New England Butt Company, of Providence R. I., which agreed to send to the Philippines a sample braiding machine.<sup>1</sup>

In the meantime the Japanese have devised cheap machines for braiding fiber and are exporting to the United States and Europe probably as much braid as is produced in all other localities in the world combined. The competition of Japan is being most keenly felt in Europe, with the result that several factories have closed down.

Abaca braids are known as "tagals" in the trade and are now almost entirely employed in the manufacture of hats. These have for some time been the finest and most expensive in the millinery trade. The illustration of a large hat is presented in this article. It is in two colors—black and blue. The hat, untrimmed, sells retail for ₱25 in the Manila market. Another illustration shows the manner in which these braids are sewed in the production of hats. The common width of braid is  $4\frac{1}{2}$  mm. Others are as wide as 3 cm. Most of them are of a close weave, though some are of open and others of fancy weaves. The braids shown in the illustrations were selected from several samples received from Europe by the Bureau of Education and now on file in the Industrial Museum of the Bureau.

In view of the competition which is being felt from Japan, European manufacturers have considered the advisability of establishing braiding factories in the Philippine Islands. The product of these factories would have the advantage of free entry into the United States as against 15 per cent duty levied upon braids from other countries, and the United States is the largest importer of braids. In the first nine months of 1911 the braiding machines of Japan produced 1,200,000 pieces of braid of 80 yards each, valued at approximately ₱600,000. This production has gradually increased, however, as can be seen from the fact that in the month of May, 1912, alone, ₱300,000 of "tagals" were exported from Japan. Cheaper power, wages, and freight rates to the United States, and lower commissions and

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<sup>1</sup> This machine has been received in the office of the Bureau of Education and a picture of it is presented in this article. It can be run either by a belt from a shafting or by hand. It weaves 13 strands. The list price quoted is \$16.90 (₱33.80); the gross weight is 102 pounds and net weight 68 pounds. This machine is found to work most satisfactorily. Catalogue and price lists of the New England Butt Company are on file in the Bureau of Education and can be consulted. The machine illustrated in this article is a standard one. The catalogue quotes prices on a number of different types producing a great variety of strands.

cost of packing are all in favor of Japan. The Philippines have in their favor on offset of 15 per cent duty and the raw material at hand. From all that can be understood there are several

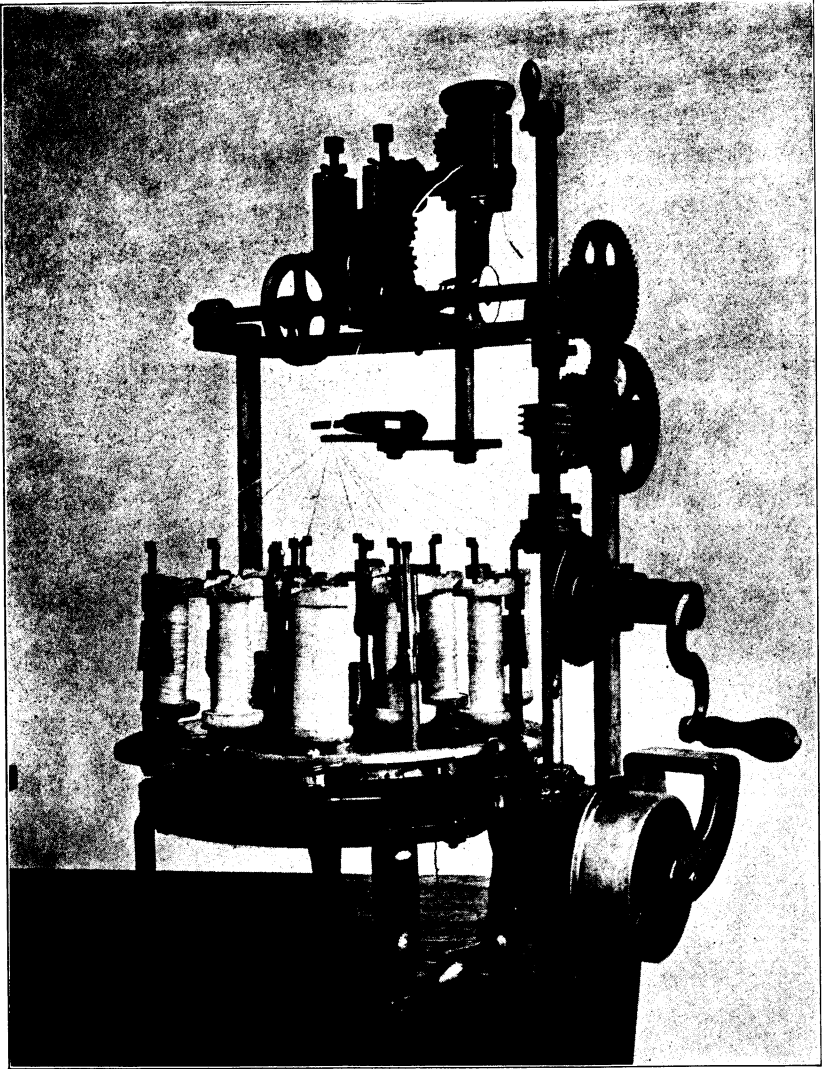


Plate XI. Thirteen-spool braiding machine of the New England Butt Company.

plans for large braiding establishments in the Philippines now under way.

There are now three small braiding factories in the Philippines, two within the limits of Manila and one at Malabon,

Rizal Province. These have a total of 180 machines, each capable of turning out  $2\frac{1}{2}$  pieces of braid per day. Each piece contains 80 yards of braid  $4\frac{1}{2}$  mm. wide. This is a total possible production, therefore, of 575 pieces or 46,000 yards a day. The amount seems very large indeed, but when one comes to consider that it takes one piece (80 yards) of braid to make a small hat for men's wear, it can be seen that this production is not very great. The present output of braids in the Philippines is made into men's hats which retail here for about ₱2. The cost of the raw material for such a hat is about 50 centavos; that is,

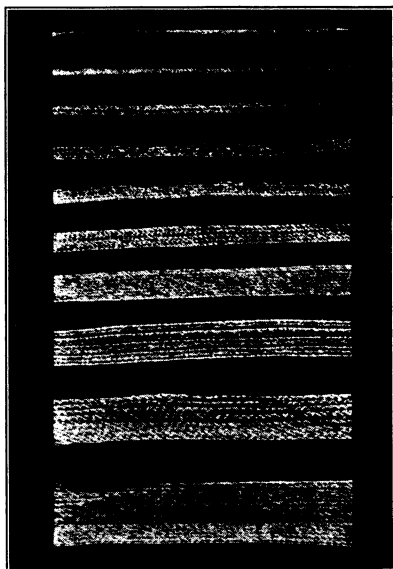


Fig. 1. Braids of various sizes. The top braid is 2 mm. wide, lower one 30 mm.

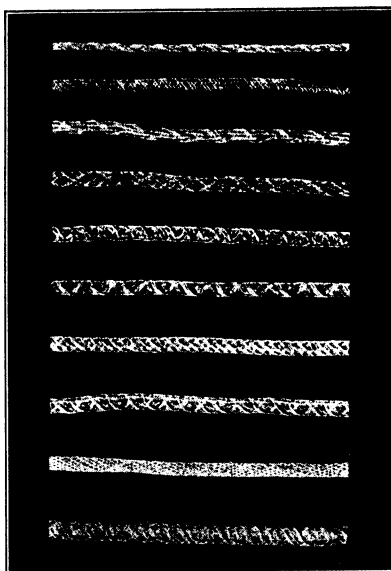


Fig. 2. Fancy braids.

Plate XII.

for a piece of 80 yards. This is a rather cheap hat in the Philippines and it is believed that the mode will last for some time to come. Braid is also exported to the United States from Manila.

The amount of material going into one piece of abaca braid averages 2.7 centavos and fluctuates from 2.5 to over 3 centavos.

While the present use of "tagal" braid is practically confined to the production of hats, other uses are gradually being found for it. There is presented in this article an illustration showing a white handbag made from bleached pandan raffia (which this

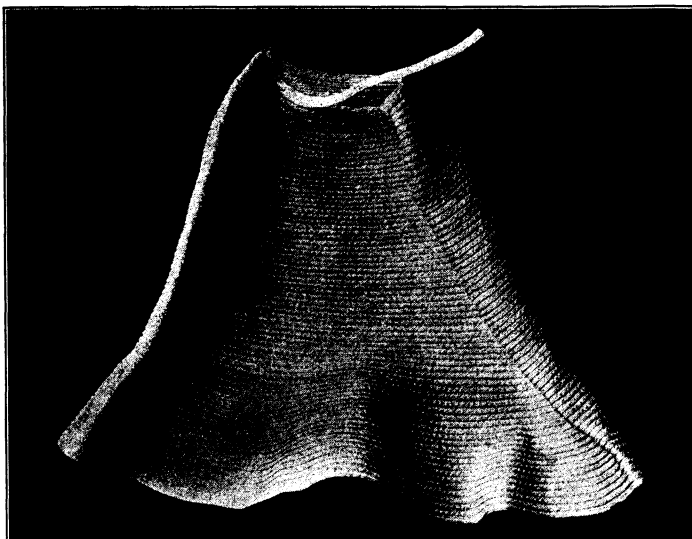


Plate XIII. A man's "tagal" hat, showing method of sewing braid.

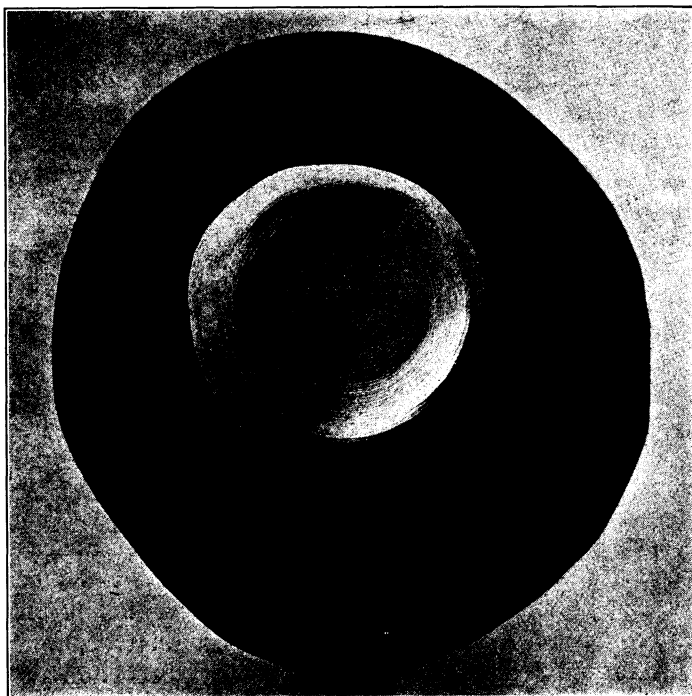


Plate XIV. Woman's "tagal" hat.



Bureau is now experimentally producing) and abaca braid. The idea is a good one and undoubtedly can be evolved into a very much better article than that illustrated, which was bought at a local Japanese store for a peso. The writer believes that any number of beautiful and salable articles will later be produced from the braid. The Bureau of Education is now turning out on the machine from the New England Butt Company some flat braids 2 mm. wide from which it may be possible to weave



Plate XV. A bag of "tagal" braid and bleached pandan raffia from Japan.

coiled baskets. (This is the narrowest braid shown in the illustrations.)

A summary of the present situation in the knotted abaca and "tagal" braid industry is as follows: The export of knotted abaca from the Philippines is increasing year by year, the money value for the year 1912 being ₱1,231,538. Most of this sum is kept in the hands of the workers. A considerable amount of loose abaca suitable for tying is also being sent to Japan, where it is knotted in fishing villages. The European manufacturers are feeling keenly the competition of the Japanese braids and investigations have been made with the view of establishing large factories in the Philippines. There are now in and near Manila

three small factories, the product of which is consumed locally and is exported to the United States. The chief use of abaca braids at the present time is in the making of hats. As a material for the finest and most expensive women's hats the day of abaca braids is probably past, though it is equally probable that a fair grade hat will always be produced from them and that there will always be a large demand for "tagals." It is also probable that many other uses can be found for the braid itself and for the knotted abaca as exported from the Islands. It is very possible that braids produced in the Philippines can be utilized in the production of many beautiful articles of school work.

EDITOR'S NOTE.—This paper on abaca introduces the plant and its fiber, and contains the first of a series of discussions on its uses. These articles will be continued through the present volume under the main heading of Abaca. They will take up the various materials which are prepared from the plant and the articles which are made from them.

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The educational board of the colony of Trinidad in South America has as yet given very little attention to special industrial training. However, the importance of manual training in the schools is now being urged by those who are most interested in these matters, and it is hoped that in the near future valuable work of this kind may be introduced into the schools, especially along agricultural lines.

Trinidad is and must always remain a country devoted to purely agricultural pursuits; so in the Philippines the economical condition of the people must continue to depend directly upon the products of the soil. The industrial work of the schools must follow along the lines on which the people of future decades must depend, and here the extreme importance of proper direction in gardening and farming is evident. The accomplishments which have already been made in the improvement of school gardens and the extension of home gardens are gratifying, and types of school farms which are in a way quite successful have been evolved in many parts.

At the same time a proper division of labor and the most practical development of the several industries that are also essential in a purely agricultural community will justify the rapid extension which is being given through the schools to the varied phases of industrial school work.

The fields will continue to be tilled, and improved methods and implements will provide increasing food supplies for a growing population; the many arts and crafts of an apt people will be applied toward the economic independence of the country.

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## EDITORIAL AND OFFICIAL.

**T**HE school year 1912-13 opened in the month of June under most favorable conditions throughout the various school divisions of the Islands. A very live and intelligent interest is being shown by the people generally in the public school situation, as is evidenced by the flood of applications for enrollment. In the higher grades, particularly, the number of requests for admission is greatly in excess of the maximum that can be enrolled to mutual advantage, and until such time as the Bureau of Education shall have more ample funds at its disposal it will not be practicable to accommodate more than a small percentage of the total school population. The special features now receiving attention in the public schools of the Philippines are making very heavy drains on the limited appropriations allowed the Bureau of Education; the industrial program, for instance, constantly requires more generous expenditures.

The Opening of  
Schools.

All municipalities are being urged to reserve a stated proportion of their current revenues for future use in the construction of permanent school buildings in accordance with the standard plans now in the field. This reservation of funds necessarily results in a curtailment of some line of school activity. The number of pupils demanding instruction in the higher grades has operated toward a corresponding decrease in the size of the average class, which of course increases the per capita cost of education. It is not to be understood, however, that primary instruction is being neglected in favor of the more advanced classes. The endeavor is to impress upon the various municipalities the absolute necessity for providing adequate accommodations for the pupils of the lower grades. In cases of inability or refusal of municipalities to furnish reasonably good accommodations for primary grade schools, it is in most instances advisable to close the school. No further extension of primary school work will be contemplated until municipalities provide suitable buildings, insure regular attendance, and, as their maintenance is almost wholly dependent upon local municipal resources, guarantee sufficient funds for the efficient operation of such schools.

Since extension of schools is not practicable at the present

time, the hope of additional improvement lies largely in the success of efforts now being made to secure the greatest possible regularity of attendance. In this connection attention is invited to the fact that although a decrease of 25,000 in the average daily attendance occurred for the school year 1911-12, as compared with the year 1910-11, the daily percentage of attendance shows an increase from 80 to 83 per cent. These figures indicate that the instruction given during the school year 1911-12 will be productive of far more beneficial results than that of the preceding year. It is expected that the insistence of division superintendents upon greater regularity of attendance will further increase the daily percentage of attendance this year, and thereby secure additional efficiency without any increase in operating expenses.

The opening of the current school year marked an epoch in industrial instruction in the Philippine public schools. The entire superintending and teaching force is imbued with the feeling that industrial training is the foundation of lasting success for the educational system of these Islands. Teachers and pupils are keen for the work ahead of them and confident of the rewards which the present year will bring.

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Arbor Day first found a place in the school calendar in 1906, when Dr. David P. Barrows, then Director of Education, designated the last Saturday of July for its observance. On account of the difference in local climatic conditions, division superintendents have for a number of years been permitted to observe either the first Saturday in August or the first Saturday in October. It often happens that planting is begun long before the day designated, and in some places it continues after the day has passed. Last year, two-thirds of the total number of trees were planted on Arbor Day itself.

While the ultimate aim of Arbor Day is to develop character by teaching children to love flowers, trees, and birds—all nature in fact—this is accomplished by the most practical means. The planting of trees and shrubs to beautify the school grounds and other public places serves as a lesson in civic and home improvement and the conservation of those natural resources that make a country both prosperous and beautiful.

Tree planting is accompanied by appropriate exercises which enlist the interest of the general public and impress upon the minds of the people the lessons to be learned. After the trees

are planted, teachers and pupils are encouraged to give close attention to their protection and care. At first, large numbers of trees were planted and left without any particular attention; the result was that only a few survived. The tendency everywhere now is to reduce the total number planted and to increase the percentage of surviving trees.

Certain divisions have already observed Arbor Day for 1912. Since figures will not be available for some time, only those for the previous year can be mentioned. Last year 2,537 schools throughout the Islands observed the day. The total number of trees planted during the entire year was approximately 350,000, of which 230,000 were planted on Arbor Day. Of these, 200,000 were reported as living at the close of the school year. It will be interesting to note that of the grand total 160,000 were fruit trees and 55,000 were shade trees, leaving the balance of 135,000 distributed among other varieties. More than half the trees were planted at the homes of pupils.

When Arbor Day was originally designated by the Director of Education, it was the intention that the restoration and preservation of the town plaza should be taken into consideration primarily. This has been outgrown and present plans include the planting of trees by school children about their homes and along the public roads and streets, as well as in and about the town plaza. Furthermore it is desired that the active interest of the general public be enlisted, and that the people be encouraged to follow the example set by the children and plant trees for themselves.

If it were possible to carry these plans to a successful issue, the results secured in a few years would be almost past calculation. The number of trees planted can have little significance if the trees are not given careful attention afterwards. The problem is to follow up the passing enthusiasm of Arbor Day plantings with such watchfulness and cultivation as may be necessary to insure that the largest possible number of trees survive.

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In order that this industrial magazine may in the fullest possible measure serve the interests of the public schools, its contents should treat of the subjects which are of most immediate importance. Superintendents and teachers are invited to submit for consideration industrial papers and notes for any one of the several departments of the magazine. Material submitted may include complete papers on various industrial activities; briefer notes discussing experiments, inventions, scientific work, commercial state-

Submission of  
Material.

ments, special processes in the preparation of a material or the fabrication of an article, terminology, designs, suggestions and recommendations, exhibits and contests, statistics, comparisons, general statements of industrial accomplishments, references and reviews.

Wherever it seems desirable, articles should be illustrated with properly named photographs and drawings; in fact, good photographs of industrial work, even unaccompanied by any writing other than descriptive titles, will be very acceptable. Material should be typewritten if possible, on one side of the paper only.

In addition to the submission of prepared papers on various topics, suggestions and recommendations on points which need attention will frequently put this office in a position to secure articles from experts who are specially qualified to write upon those subjects. Teachers are requested to give this matter particular attention and to ask for information on any phase whatsoever of the industrial and economic conditions in the Islands.

Due credit will be given for material which is accepted for publication.

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Artesian wells are being sunk in a great many provinces and municipalities of the Philippine Islands. This represents a great hygienic and sanitary improvement over the conditions previously existing with relation to the obtaining of a pure water supply. In most instances the people have grasped the fact that their physical well-being is intimately related to the kind of water they drink—the improved source is in consequence widely utilized.

There is yet another aspect of the artesian wells that may have escaped attention in many places, and this is the utilization of the overflow or waste that is generally led away by an escape pipe or drain to some lower grade level in the proximity of the well. Why not make use of this overflow for some practical purpose, as for irrigation, let us say? This is being done in six municipalities in Pangasinan Province, where channels or pipes lead the water to the school garden. Successful school gardens, especially during the dry months from January to May, may in this wise be counted upon with certainty.

One school garden, that at San Carlos, has perfected a system of ditches and gates that enables the water to be conducted over more than half a hectare of ground with facility and convenience.

A system of laterals from two or three mains carries the water to the edge of each garden plot. Connected walks raised to a level somewhat above that of the surrounding ground run through the garden and adjoin the ditches. By hand the student takes water from the ditch, which is at arm's reach from almost any part of his plot. Gravity is the force utilized in the distribution of the water.

No prettier picture can be conceived than that of water flowing through the ditches amid the growing vegetables as they approach maturity. All this appears to be the desideratum in this country where the extreme dryness of the period from January to May leaves the very painful impression on the mind of the observer, that sterility and aridity are prevalent conditions and not a transient state due to lack of water.

Gardening for the school and home is largely a matter of obtaining an unfailing water supply. Where one exists that can be used, even at the expense of considerable work, it should be done. In its absence, time and thought should be given to its solution—existing streams and springs should be utilized and deep wells sunk through the efforts of pupils and townspeople. One town in this same province, Mangatarem, has utilized a mountain stream coming from a distance of between 4 and 5 kilometers. The garden was in a most flourishing state during the recent dry period of January–May.—L. R. S.

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Each mail brings to the editor's desk a mass of published matter from the United States and other parts of the world, which includes textbooks, reference books, magazines, bulletins, catalogues, pamphlets of various sorts, and reports dealing with school work and to some extent with industrial work. The review of such papers as have been received has been of very real assistance; it has indicated the lines which industrial instruction is following in other places; but the greatest value of these publications to the Philippines lies in the suggestions which they offer and the inspiration which they give.

The mission of *THE PHILIPPINE CRAFTSMAN* is found in its name. It is published first and always in the interest of the Philippine public schools, and it makes no attempt to associate itself with work in the United States except in so far as coöperation may prove of value here. It is a school magazine devoted entirely to industrial work and its field of enterprise will embrace

only those conditions which have a bearing on the industrial and economic welfare of the people of these Islands.

The exchanges which are received at the editor's desk are reviewed with eagerness. As school journals, their contents are perused for the good of the Philippine schools. Where articles or items are found which may be of service in an industrial way for THE PHILIPPINE CRAFTSMAN they may be reprinted or reviewed, or used as references.

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#### HAND SPINNING AND WEAVING IN JAPAN.

Hand-loom weaving is still carried on in Japan to a great extent. Official reports of the textile industry in Japan show that there are, at present, 400,000 dwellings containing about 800,000 looms worked by hand, employing, no doubt, some 800,000 persons. A reduction, however, is said to be gradually taking place, and the Japanese continue to advance experiments in making their own power looms.

Practically all the hand looms are of Japanese manufacture, and they continue to compete successfully with the power loom on account of their cheapness. They can be purchased for about ₱6 each, and they are so constructed that they take up very little space.

About four-fifths of them are engaged on cotton goods, the others being mostly in silk, and silk and cotton; 95 per cent of those who manipulate them are women and girls, who alternate weaving with their ordinary domestic duties.

In addition to weaving, yarns are also hand spun in the homes of the people, native cotton being mostly used for this work. But hand spinning will soon be doomed now, owing to the rapid development of efficiently equipped spinning mills, containing mostly ring frames. Since 1904 the spindleage of the country has increased from 1,333,802 to over 2,100,000. In 1893 Japan consumed 192,188 bales of raw cotton, while last year 1,067,828 bales were used, which included 135,888 bales of American staples. This may seem a large quantity for the spindleage of the country, but it must be remembered that Japanese cotton mills run for twenty-two hours in the day. Wages, too, are low. Of the 92,000 operatives employed in the regular cotton mills, on day and night shifts, 74,000 are females, who are paid only an average of 30 centavos a day for adults and about 16 centavos a day for children. (From Posselt's Textile Journal, Vol. X, No. 4, April, 1912.)



"And he gave it for his opinion, that whoever could make two ears of corn or two blades of grass, to grow upon a spot where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together." (Dean Swift.)

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While the Philippine schools are solving their difficulty of securing suitable industrial teachers by means of institutes, scholarship courses, and other special measures, it is interesting to know that the difficulty of supplying the demand for trained industrial teachers is now also strongly felt in the United States. Not only is there lack of qualified teachers for the more advanced scientific and technical work, but even for the simplest manual training, which is now receiving more and more attention in the grades. Teachers cannot be supplied. The inadequacy of the purely academic training or of the mere rule of thumb skill as a preparation for industrial teaching has been clearly demonstrated. At least two institutions in the United States are making special preparation to meet this emergency; these are the Carnegie School of Technology at Pittsburg, Pennsylvania, and the School of Practical Arts, Teachers College, Columbia University, New York.

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A bill has been pending in the Congress of the United States which is contemplating the annual appropriation of \$28,000,000 to be expended in coöperating with the several States for the promotion of instruction in agriculture, trades, industries, and home economics in the secondary schools; in the training of teachers for these vocational schools and for other publicly controlled institutions; in maintaining extension departments of the State agricultural colleges; and in maintaining branches of the State agricultural experimental stations. Under the proposed plan, the administration of this movement will be carried on under several different branches of the Federal Government.

Here is a portion of the great movement now felt in the United States toward industrial instruction. Some States are requiring the passing of an examination in agriculture before granting teachers' licenses; agricultural high schools are being established; and all over the land the movement is to break away from the old tendency to consider the classical and professional education as the only training which would make for a successful life.

In most foreign countries, particularly in the Tropics, the term "industrial education" is understood to mean either agricultural or technical instruction; no attempt is made, while the pupil is studying in the common schools, to train him in any useful industry. After his academic training, the student who is able to do so may enter an agricultural or technical school where he will learn scientific agriculture or engineering, or will receive advanced and technical trade training. Manifestly, such a school cannot be for the common people.

In the United States the industrial training given in the grades has frequently been in the nature of paper cutting, stick laying, and play work; in the secondary and preparatory schools, manual training has been meager; the higher institutions have provided more generously for agricultural and technical instruction. More recently, however, many excellent industrial schools of an intermediate character, whose aim is to prepare the common boy for earning a livelihood through the trades, have been established. This would seem to be along the more practical lines which, though almost unknown to the rest of the world, have been operating so successfully in Germany, Switzerland, and other parts of Europe, and which have had a great part to play in the industrial revival of those countries during the last half century.

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The Bureau of Education recently received from Marshall Field & Co., Chicago, Illinois, embroidery goods for the purpose of comparing the work done in our schools with that of other lands. This shipment consisted of marked patterns on night gowns and towels, and of a dozen embroidered handkerchiefs together with a dozen blank handkerchiefs on which similar patterns were to be executed. The work was finished recently and forwarded to the Director of Education, who is now in the United States and who will deliver it personally to Marshall Field & Co. The stamped designs were very beautifully executed in the Manila schools. The handkerchiefs were worked out in the Province of Sorsogon and as a whole compare most favorably with the originals from which they were made. Many of them are of even better workmanship than the handkerchiefs submitted by Marshall Field & Co.

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"Time spent in the cultivation of fields passes pleasantly."  
—Ovid.

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## INDUSTRIAL NOTES.

### THE INDUSTRIAL EXHIBIT TAKEN TO THE UNITED STATES BY THE DIRECTOR.

In the first issue of the CRAFTSMAN, mention was made of the Mohonk exhibit of Philippine school industrial work, now in the United States with Mr. G. N. Briggs. The schools which were represented in this exhibit, the attention which it centered upon our efforts in the Philippines, and the information which it gave us as to the attractiveness and salability of Philippine industrial articles, have fully demonstrated the value of keeping such an exhibit in the United States. For this reason, last March letters were sent out to almost all of those divisions which had unusually meritorious displays at the Bureau exhibit in the Philippine Exposition, for the purpose of assembling a much larger and better exhibit which should be sent to the United States to be merged with the former one. The exhibit was duly assembled, and was taken to the United States by the Director, Mr. Frank R. White, who left on leave of absence for the United States on June 22, 1912.

The inspection, classification, and labeling of the articles included in this exhibit necessitated so much work and time, and so many of the articles arrived only a few days before Mr. White's departure, that it was not feasible to show the exhibit complete. However, those persons who were fortunate enough to see the articles on display while the finishing touches were being placed upon the exhibit felt that they represented by far the best work that

has yet been done in the Philippine schools. Some idea of the scope of the exhibit may be obtained from this description:

On 138 herbarium sheets are mounted specimens of Philippine plants and materials which are obtained from them. These sheets also include specimens which show the preparation of the materials; for examples, the colors in which tikug straw is dyed, and the brown and gray shades and tints which result from scraping palm petioles.

There are 87 baskets, each differing from all the others in type, shape, or decoration. Many new basket types which have been originated since the 1912 Exposition are included. Both the coil baskets and the slippers include a great many articles made of abaca, and there are other abaca specialties, such as handbags, footstools, belts, model lupis chairs, and the like, to the number of 17.

The exhibit of textiles is headed by a doll dressed in the native costume of the Filipino women. There are 29 samples of native cloths, including those made of abaca, buri raffia, silk, and cotton. Much of the cotton cloth is of Igorot design. The silk cloth is made entirely of material raised, reeled, and thrown in the schools.

Former exhibits have contained no products of the school shops and trade schools, the work of these institutions being shown merely by photographs. The present exhibit contains 32 small articles from these schools, including paper knives, canes, trays, napkin rings, card boxes, can-

dsticks, jewelry boxes, and indian clubs.

Embroidery, lace, and Irish crochet make up fully one-half of the exhibit. Altogether they comprise 158 pieces. The lace is mounted on special cards of a rich red color which brings out the designs perfectly. These cards have strips on the sides under which the loose ends of the lace are hidden. All the embroidery and all complete articles of lace and Irish crochet are mounted in heavy white cardboard boxes made to order for their accommodation. Each article is sewed firmly to a piece of cardboard, which in turn is glued to the bottom of the box. This arrangement displays the articles to great advantage and protects them from being crumpled in travel and from being soiled by the fingers of the overcurious. The pink mounting paper is used for the embroidery, with the exception of that done on piña. The piña pieces and sets are contained in nine boxes. Some of the embroidery is most exquisitely done, the light and shade effects being perfect. All piña embroidery is mounted upon a rich brown silk, which brings out the pattern much better than does the pink paper. Many splendid new designs in embroidery, laces, and Irish crochet are to be found in this exhibit.

Other articles comprise 18 slippers of various types, 10 fans in different designs, 11 hats of different materials and weaves, mattings in 7 materials, 8 mats of various materials and in new designs, 8 cushion covers, 12 pocketbooks, cigarette cases, book bags, 10 brushes and brooms, and 23 miscellaneous articles such as hand and school bags, coconut-shell ware, canes, and door mats.

Along with the exhibit are 53 bulletins and textbooks published by the Bureau or specially prepared for Philippine schools, and a photograph album consisting of approximately

150 photographs of such exhibits as the 1912 Exhibition, school buildings, physical training, athletics, gardening, the Teachers' Camp at Baguio, and other school activities.

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#### REVIEW OF PERIODICALS ON HOUSEHOLD ARTS.

With a view of placing before industrial teachers throughout the Islands new designs for lace, embroidery, Irish crochet and the like, the Bureau of Education has subscribed for a number of copies of certain publications along these lines. In some cases the magazines which have thus been placed in the hands of teachers are not all that could be desired, and even the best contain many designs and ideas which are mediocre. Beginning with this issue, the material in these periodicals will be reviewed. The designs and ideas which should be avoided will be pointed out and those of special merit will be noted together with suggestions on the improvement of any designs which are not up to standard. From time to time also general notes will be given on the latest modes. In this way it is hoped to better utilize these periodicals in obtaining and keeping the highest possible standard in household arts.

In *Modern Priscilla* for June, 1912: page 5, the Irish crochet lace design is pleasing as applied to the costume; however, the relation of the parts of the motif to each other could have better arrangement. Of the Irish crochet and embroidery designs on page 7, Nos. 12-5-9 and 12-6-11 are particularly nice. The pillow designs on page 8 are pleasing with the exception of No. 12-6-17 which design seems disjointed and splattery. The Irish crochet on page 11 is simple and good. Of the bags on page 13, figures 4 and 5 are most satisfying although the arrangement of drop ornaments could be improved. The

punch embroidery design on page 15 is pleasing in itself and seems a very fit trimming for tailor garments. Of the collar designs on page 17, No. 12-6-49 is the better. The designs on page 18 are good; also those on page 22, with the exception that No. 12-6-57 might be too heavy and so lack the daintiness required in such an accessory.

In "The Paris Journal of Fancy Work" Album 5: The Venetian lace squares—Fig. 9 is better planned than Fig. 8, while the darned net, Fig. 10, is good and satisfying. The "foilage" Table Linen Set is generally good, although Figs. 9, 16, and the table center on page 5 seem flimsy and unsupported on the edge which should be more substantial. Fig. 8 is the least attractive while Figs. 17, 51, 52 are well planned. The crochet lace cushion is not beautiful enough to be worth while. The lingerie cushions for chair back and seat seem over decorated and show an inappropriate use of batiste and ribbon. A quiet space would be better for the center here than the inset of lace. Album 11: The conventional design for the Chesterfield couch cover is interesting and well planned, and the dragon fly design in Richelieu embroidery, Page 8, is also very satisfying. The lace and net sofa back, and the imitation Milan lace, pages 9 and 10, are good, but the night dress case, lace box, globe box, soiled linen bag, sachet, photograph frame and doily or tray cloth are commonplace.

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#### THE MOUNTING OF EMBROIDERY AND LACES.

It is usual to mount all embroidery and lace upon tissue paper of a delicate pink. In connection with the Industrial Museum of the Bureau of Education and exhibits which have been sent to the United States, considerable study has been made of the

colors over which various forms of embroidery and lace can be best displayed. It is probable that for most embroidery, Irish crochet, and such products through which the pink color is but dimly seen, the standard pink tissue paper is best. Such open designs as occur on bobbin lace, Tenerriffe lace, and Renaissance lace show to best advantage over a rich deep red cardboard known by E. C. McCullough & Co., Manila, as "Cardinal Tough Check" and retailing for 20 centavos a sheet (22½ inches by 28½ inches). The same cardboard when reinforced with cloth on one side is very good for punching lace designs, and retails at 30 centavos per sheet.

Embroidery on piña is shown most beautifully upon a medium brown. A "café-au-lait" India silk has been used, but it is rather expensive. Almost the same effect has been obtained by mounting piña upon dark brown wrapping paper usually known in the trade as "jute paper," though sometimes called "Manila paper." The term "Manila paper", however, is usually applied to very much lighter yellowish brown material which does not show piña embroidery to advantage.

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For the past two years the school people of these Islands have felt that something should be done to impress upon the merchants the necessity of supplying the demand for needlework supplies, a demand which has been growing wonderfully since the teaching of this class of work in the schools, and for which the market has been entirely inadequate. This question has been repeatedly brought to the attention of Manila merchants in an informal way, but up to a year ago very little had been done to improve the condition of the Manila market in this respect, nor was any early action anticipated. The mer-

chants hesitated because of lack of information on which to base orders for supplies; they did not know what was being done or the amount of work which was being done, and could not be expected then to place orders for goods. Nor could these merchants determine from orders which were received from time to time from teachers just what the demand would be.

In view of this the Bureau of Education itself took steps to remedy the situation, and about ten months ago a committee was appointed to consider the amount and nature of the work done by the girls of the schools and to make recommendations for supplies. Pursuant to the recommendations of this committee the Bureau placed, through the Bureau of Supply, a preliminary order for needlework supplies which it was thought would be sufficient for several months. At the same time about one dozen of the Manila merchants who handle these goods were furnished copies of the order placed and were advised of the action of the Bureau. They were then asked to consider this matter further and with the idea of placing such orders as would make it unnecessary for this Bureau to interfere further in supplying the demand for such materials. Acting upon this suggestion, many of the more prominent merchants immediately placed large orders for the standard goods which were recommended. These goods should already be arriving from the United States and Europe, and it is the purpose of the commercial houses interested to continue their orders and to have on hand a continual supply of needlework materials.

The goods which were ordered on the requisition placed with the Bureau of Supply are now being received in the General Office and instructions are being sent out as to the proper manner of ordering. This stock will

consist chiefly of materials for Irish crochet, bobbin lace, embroidery work, and plain sewing. It is the intention of the Bureau to continually oversee the supply of goods which Manila merchants keep in stock; when they fall short or fail to keep up the supply, the Director will place further orders for distribution by sale from the General Office. It is believed, however, that the market will soon be adequately supplied by a number of reliable Manila houses.

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The industrial department of the Philippine Normal School was organized in January, 1910. Its development since that time has been very rapid and it is now one of the large features of that institution. It is constantly adding to its curriculum new courses along those industrial lines which have been developed and found satisfactory in the public schools of the Islands. At the present time the following courses are given:

- (1) Domestic science, including sewing, cooking, and housekeeping.
- (2) Agriculture, with special emphasis on gardening.
- (3) Loom weaving, both textiles and grass mattings.
- (4) Elementary hand weaving for the primary grades.
- (5) Hat weaving—buri, sabutan, buntal, bamboo, and calasiao.
- (6) Basketry, and bamboo and rattan furniture.
- (7) Embroidery.
- (8) Lace making and crochet.
- (9) Slipper making and abacá work.

The heaviest of these subjects require two years for completion, while others may be finished in one year's work.

The extension of the industrial department as indicated was in answer to a demand for courses which would aid provincial teachers

in training themselves for the various handicrafts and industries which they would later be expected to teach in their home provinces. Each regular student who now enters the normal school is required to complete two years of industrial work before graduation. In addition to this the department offers special courses to teachers who do not expect to graduate from the general teaching course but who wish to train themselves along some special line of industrial work. Aside from class instruction this department also carries on experiments in connection with the General Office of the Bureau of Education. During the past year it has developed a matting loom, a textile loom, a screen loom, an alcohol oven, and a buri stripping machine. All of these will be available for distribution, or for construction in the provinces. Experiments in the preparation, bleaching, and dyeing of the raw materials used in industrial classes are also performed. The most successful experiments of this nature which have been carried on during the past year were in the preparation of bamboo weavers for baskets and of pandan raffia for matting.

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The increasing demand for industrial education in the schools has been accompanied by a growing dissatisfaction with the nature of the problems found in most arithmetics. It has been felt that more stress should be placed upon problems dealing with conditions such as actually arise in the industrial world. Texts embodying such problems are already beginning to make their appearance in the United States and elsewhere. The need of a collection of mathematical problems adapted to local conditions has been felt in the Philippine Is-

lands and particularly in the trade schools. In view of the unusual conditions obtaining in this country, no text prepared for American or English schools is suitable for our work. For this reason, Mr. W. W. Marquardt, Superintendent of the Philippine School of Arts and Trades, is at the present time working out supplementary arithmetics to correlate the standard intermediate arithmetic text of the Bureau of Education more closely with local industries. Groups of practical problems in carpentry, cabinetmaking, domestic science, and agriculture have been prepared by the teachers of the Philippine School of Arts and Trades and by industrial specialists in various provinces. This text will probably be ready for distribution during the coming school year.

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The Industrial Information Department of the Bureau of Education has in course of preparation a bulletin on "Philippine Industrial Fiber Plants." The ultimate purpose of the bulletin will be to put within the reach of the field reliable and accurate information concerning the principal fiber plants now being used in the public schools of the Philippines. The task is not an easy one; there are approximately 120 different species of plants that are now used in the various phases of industrial work, most of them yielding several materials. This large number does not include hundreds of plants which have not yet been thoroughly tried in the schools, and about which there is at present too little specific information to make it advisable to include them in the bulletin.

This work has been based on the collection of fiber plants received from each province in response to Circular 175, s. 1910. The specimens sent in have been carefully dried, poisoned, and mounted on

herbarium sheets, and scientifically classified as to species and family, and they are now in the Industrial Museum of the Bureau of Education, at the disposal of teachers for consultation and reference. Local names and information submitted with the specimens have been carefully noted and filed. In the scientific determination of the plants, the Bureau of Education has had the assistance of the Bureau of Science.

The bulletin will take up each fiber plant under its most common native name, give its scientific name, its name in the various local dialects of the country, and its distinguishing features, so that, if unknown, it will be easily recognized. It will also tell where to look for the plant. Illustrations of the most important plants will be included.

The preparation and uses of the materials obtained from each plant will be carefully discussed.

The bulletin will be indexed according to native and scientific names and according to the uses of the materials.

It is probable that the first preliminary issue will be a limited one. It will be sent to each province for corrections and additions. In this manner the information furnished from the field on industrial plants and materials will be placed in shape for ready reference and close study.

The Manila Trading and Supply Company with headquarters in Cleveland, Ohio, bought a large assortment of baskets at the 1912 Exposition in Manila. These consisted of wastebaskets, market baskets, sewing baskets, coiled baskets, and the small fancy baskets of Samar. The company states that their purchase of these articles amounted to ₱1,500 and that the whole lot was sold out immediately upon being displayed in their retail store in Cleveland, Ohio.

#### THE FILIPINO TEACHERS' VACATION ASSEMBLY AT MANILA.

The session of the Annual Vacation Assembly for Filipino Teachers for 1912 extended from April 15 to May 27, and was held at the old Philippine Normal School and at the Philippine School of Arts and Trades.

The total number of teachers who took advantage of this opportunity for vacation study reached 1,719, which is about one-fifth of all the Filipino teachers in the Islands. This number is nearly double the enrollment for 1910, which totaled 890, and is a great increase over the 1,076 enrolled in 1911.

The following table will show the enrollment by divisions in the normal and trade departments:

Divisions.	Normal.	Trade.
Agusan.....	4	0
Albay.....	20	5
Antique.....	4	1
Bataan.....	19	5
Batangas.....	167	19
Bohol.....	12	3
Bulacan.....	227	14
Cagayan.....	6	1
Camarines.....	7	5
Capiz.....	4	3
Cavite.....	10	6
Cebu.....	54	7
Ilocos Norte.....	21	10
Ilocos Sur.....	35	5
Iloilo.....	8	4
Isabela.....	2	1
La Laguna.....	28	8
Leyte.....	44	16
Manila.....	70	29
Mindoro.....	6	0
Misamis-Surigao.....	4	3
Mountain.....	1	1
Occidental Negros.....	9	3
Oriental Negros.....	3	2
Nueva Ecija.....	122	7
Nueva Viscaya.....	7	9
Palawan.....	7	2
Pampanga.....	112	15
Pangasinan.....	260	21
Rizal.....	20	13
Samar.....	3	4
Sorsogon.....	12	3
Tarlac.....	21	1
Tayabas.....	25	13
Union.....	57	6
Zambales.....	3	0
Total.....	1,474	245
Grand total.....	1,719	

The courses given were along the same lines as in former years—methods, academic work, and industrial



instruction. The following table shows the enrollment in all the industrial courses:

Basketry .....	478
Gardening .....	343
Slipper making .....	201
Embroidery .....	196
Elementary hand weaving .....	194
Irish crochet .....	177
Hat weaving .....	171
Sewing .....	102
Commercial work, trade .....	79
Cooking .....	75
Shop exercises as prescribed by the Manual of Elementary Carpentry .....	59
Lessons on simple furniture construction..	56
Advanced woodwork .....	54
Intermediate industrial drawing .....	53
Finishing .....	44
Loom and mat weaving .....	40
Lectures on teaching woodwork in manual training classes .....	35
Free-hand decorative design .....	31
Estimating applied to woodwork .....	30
Lessons on advanced furniture construction .....	25
Reports, property, and correspondence of trade school teachers .....	24
Primary industrial drawing .....	20
Saws .....	14
Shop mathematics .....	14
Elements of building design .....	8
Advanced mechanical drawing .....	6
Lecture on teaching woodwork in trade schools .....	6
Mechanical and free-hand lettering.....	2

#### CORN PRODUCTION IN THE UNITED STATES.

In the United States, for the year 1911, the average yield of corn per acre was 23.9 bushels. The highest average yield amounted to 48.5 bushels for the State of Connecticut. The State of New York produced an average of 38.5 bushels per acre, Indiana 36, Illinois 33, and Iowa 31 bushels, respectively. Due to attention to proper methods of seed selection, fertilization, and cultivation, the State of New York has steadily increased her average yield of corn. On the other hand, the yield in Nebraska has decreased during the last two years, the decrease in 1911 amounting to 5 bushels per acre, or 22 per cent; the average yield was

21 bushels. Although the North Atlantic States, through modern methods of intensive cultivation, have increased the yield 5 per cent, and the South Atlantic States have had a 1 per cent increase, the general average for the United States has shown a decrease during the past two years. It is evident that this decrease has taken place in the great central corn States, where, due to the natural richness of the soil and the extensive methods which are employed, the fertility of the soil for corn production has been allowed to run down.

But even with these figures, so preëminently is corn the leading crop that three-fourths of the world's crop of corn is grown in the United States. Its value is almost equal to that of cotton, wheat, and oats combined. Corn to the value of \$3,130,516,000 was produced last year.

*A Good Lubricator.*—It may not be generally known that tallow and plumbago thoroughly mixed make the best lubricator for surfaces when one is wood or when both are wood. Oil is not so good as tallow to mix with plumbago for the lubrication of wooden surfaces, because oil penetrates and saturates the wood to a greater degree than tallow, causing it to swell more.

Dr. J. Paul Goode, of the University of Chicago, who will be remembered by all who attended the Teachers' Assembly at Baguio in 1911, and by many others in the Philippines, says in a letter of recent date: "I only wish the Bureau of Education had a mail-order establishment, and that our Government were civilized enough to give us a parcels post, so that we in America might order extensively from the beautiful things the Bureau is having the people make in the schools."

A very gratifying result of the efforts of this Bureau toward making gardening a home occupation for boys as well as a part of their school work is shown in the annual report of the division superintendent for Camarines. Of the 108 schools in the province 104 report successful school gardens. In addition to this prescribed garden work, 1,523 home gardens were conducted under the supervision of the teachers of the province. Forty-five schools report improved premises, and 13 have good school lawns. Such results along practical lines of agriculture are an encouraging feature of the industrial activities of the Bureau.

During the closing months of the past school year, reports concerning local economic conditions were received from representatives of the Bureau in every section of the Philippines including the Batanes Islands and the Sulu Archipelago. These reports totaled 120. Their examination and classification has now been completed. The data thus secured constitute an interesting and valuable fund of information which will be included in the work in the field of economic conditions in the Philippines. Important features of these data are the opportunities given for a comparative study of local industrial effort and an insight into causes which have united to bring about present industrial conditions, as well as suggestions for possible remedies where these conditions are especially unfavorable. This is the first time that reliable data on comparative economic conditions in the Philippines have been brought together. They show many surprising differences between various portions of the islands.

The above data will constitute a

prominent part of the text on Economic Conditions in the Philippines, both in actual subject matter and for illustration. It is hoped that the book will be available for the next school year.

A suggestion has been submitted to this office that school pupils be encouraged to invest their earnings from school industrial work in the purchase of school books and other books for their homes. This suggestion is worthy of consideration. It offers a means of correlating the industrial work very closely with the academic work of the pupil. There are of course other objects in which the school boy or girl may invest his money with profit. The boy's athletic equipment may require some slight expenditure, and the girl will want many things for her comfort and convenience. But in any case the purpose for which the product of the pupil's industrial work is spent should receive some supervision.

The extract quoted in the front of this issue is taken from an address by Arthur D. Dean at a meeting of the National Society for the Promotion of Industrial Instruction, held in Milwaukee, Wisconsin, on December 3, 1908. Mr. Dean is Chief of the Division of Trade Schools for New York State, and is very popular as a speaker and magazine writer. It is hoped that he may be present at the next session of the Teachers' Vacation Assembly at Baguio.

In the September number of *THE CRAFTSMAN* will appear the first section of a comprehensive article on "Philippine Mats," which will continue through three numbers.

## BUREAU OF EDUCATION PUBLICATIONS.

(Abbreviated list.)

### ANNUAL REPORTS:

- Eighth Annual Report of the Director of Education, 1908. (Supply limited.)
- Ninth Annual Report of the Director of Education, 1909.
- Tenth Annual Report of the Director of Education, 1910. (Supply limited.)
- Eleventh Annual Report of the Director of Education, 1911.
- Twelfth Annual Report of the Director of Education, 1912. (In course of preparation.)

### BULLETINS:

- 5. Notes on the Treatment of Smallpox.
- 10. Government in the United States. Prepared for use in the Philippine Public Schools.
- 24. Outline of Year's Course in Botany and Key to the Families of Vascular Plants in the Philippine Islands.
- 29. Constructive Lessons in English, Designed for Use in Intermediate Grades.
- 31. School and Home Gardening.
- 32. Courses in Mechanical and Freehand Drawing, for Use in Trade and Intermediate Schools.
- 33. Philippine Hats. (Supply limited.)
- 34. Lace Making and Embroidery.
- 35. Housekeeping and Household Arts—A Manual for Work with the Girls in the Elementary Schools of the Philippine Islands.
- 36. Catalogue and Announcement of the Philippine Normal School. (Edition exhausted.)
- 37. School Buildings and Grounds.
- 38. School Buildings—Plans, Specifications and Bills of Material. (In course of preparation.)
- 39. A Manual of Freehand Drawing for Philippine Primary Schools. (In course of preparation.)
- 40. Athletic Handbook for the Philippine Public Schools.
- 41. Service Manual of the Bureau of Education.
- 42. Intermediate English II—Notes, Directions, and Aids to the Preparation of the Correspondence Study Course.
- 43. Catalogue of the Philippine School of Arts and Trades, 1911-12.

- 44. Libraries for Philippine Public Schools. (In course of preparation.)

### CIVICO-EDUCATIONAL LECTURES:

- 1. The Rights and Duties of Citizens of the Philippines. (Supply limited.)
- 2. The Prevention of Diseases. (Supply limited.)
- 3. Rice. (Supply limited.)
- 4. Diseases of Animals. (Supply limited.)
- 5. Coconut Beetles. (Supply limited.)
- 6. The Housing of the Public Schools. (Supply limited.)
- 7. Coconuts.
- 8. Corn. (In course of preparation.)

### THE TEACHERS' ASSEMBLY HERALD

- Volume I, 1908. (Edition exhausted.)
- Volume II, 1909. (Edition exhausted.)
- Volume III, 1910. (Edition exhausted.)
- Volume IV, 1911. (Supply limited.)
- Volume V, 1912.

### TEXTBOOKS:

- Selected Short Poems by Representative American Authors.
- Commercial Geography; the Materials of Commerce for the Philippines.
- Macaulay's Samuel Johnson; Emerson's Self Reliance; Lincoln's Gettysburg Address.
- An Introduction to the Study of Colonial History. (In course of preparation.)

### MISCELLANEOUS:

- Woodworking, a Manual of Elementary Carpentry for Philippine Public Schools.
- Some Recipes for Preparing Jellies, Preserves, Pickles, and Candies from Philippine Fruits. (Supply limited.)
- Syllabus of Economic Conditions in the Philippines. (Supply limited.)
- A Statement of Organization, Aims, and Conditions of Service in the Bureau of Education.

### THE PHILIPPINE CRAFTSMAN:

- Volume I. (Now current.)

